Railway Age Gazette

PUBLISHED EVERY FRIDAY AND DAILY EIGHT TIMES IN JUNE, BY THE
SIMMONS-BOARDMAN PUBLISHING COMPANY,
WOOLWORTH BUILDING, NEW YORK.

CHICAGO: Transportation Bldg. CLEVELAND: Citizens' Bldg.
LONDON: Queen Anne's Chambers, Westminster.

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Subscriptions, including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free:

United States and Mexico.....$5.00
Canada 6.00
Foreign Countries (excepting daily editions)..... 8.00
Single Copies .....15 cents each

Engineering and Maintenance of Way Edition and four Maintenance of Way Convention Daily issues, North America, $1.00; foreign, $2.00.

Entered at the Post Office at New York, N. Y., as mail matter of the second class.

WE GUARANTEE, that of this issue 8,150 copies were printed; that of those 8,150 copies, 6,696 were mailed to regular paid subscribers and 345 were provided for counter and news companies' sales; that the total copies printed this year to date were 224,909—an average of 8,650 copies a week.

VOLUME 54. JUNE 27, 1913. NUMBER 26.

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*Illustrated.

THE State Railroad Commissioners of Massachusetts have investigated a collision which occurred between slowly moving passenger trains, injuring ten persons at a junction on the Boston & Maine at South Lawrence, June 3, and they report that the use of ball signals was largely instrumental in causing the collision; and they have issued an order requiring all such signals to be replaced by July 1, 1914, throughout the state of Massachusetts, by more dependable signals; that is to say, adequate interlocking. To many an old New Englander this will seem like desecration. Not that New England is the only old fashioned part of the world—ball signals and other archaic contraptions may be found not so very far from Philadelphia and Chicago, Kansas City and St. Paul—but the serene contentment based on the virtues of a couple of bushel baskets painted red and hung aloft has become ingrained in the eastern Yankee's character, like his pride in the Boston Public Library. Moreover, the ball signal deserves honor for its past. It is not very effective in fog, and nobody claims that its raised position and its lowered position are interlocked against each other; but think of the useful function it performed when it supplemented the former practices at grade crossings. Those practices were exactly like what we see on city street railways today (where the speed is only four miles an hour). In those old days Americans, in their conceit and ignorance, looked upon John Saxby (if they had ever heard of him) as a doctrinaire, and his interlocking machine as not worthy of the attention of practical railroad men. However, the world does move; and now, after Mr. Saxby is dead, though his departure was delayed till he was past 90, the Massachusetts Commissioners recognize his worth by ordering the adoption of his ideas.

THE Missouri, Kansas & Texas has been trying a new experiment this last year in the way of industrial development of its territory. A comprehensive description of the work that has been done by railroad industrial departments would fill a fairly large volume. Most of this work has been along the lines of educating farmers and manufacturers as to the benefits to be derived from certain natural advantages reached by the particular railroad employing the industrial department. Of course, railroads having land grants found the most obvious and direct advantage from attempting to induce immigration on to their lands. In their efforts to accomplish this praiseworthy object they have established demonstration farms, have run demonstration trains, have given demonstration lectures and have conducted a general campaign of education. The Long Island's success in the establishment of demonstration farms which produced rich yields of truck produce on land which had previously been considered nearly worthless, was a notable and well known example of the material advantages which a railroad company could gain from such work, even when it had no land to sell. The Missouri, Kansas & Texas' experiment is not a demonstration or a campaign of education as to what *can* be done, but simply an opportunity which has been given to farmers along its lines to make an experiment for themselves at the expense of the railroad company. Fertilizer, so extensively used in the southeast for cotton growing, is comparatively little used in Texas. Texas black lands will raise a heavy crop of cotton without the use of fertilizer; but even on these black lands it is an established fact that the use of fertilizer will increase the yield of cotton or of other crops out of all proportion to the cost of its purchase and application. The Missouri, Kansas & Texas industrial department made an offer to a certain number of farmers in each community along its line to furnish free enough fertilizer to make a thoroughly practical try-out of its use. It will be a year or two until definite figures can be given for the results of this experiment; but in the meantime it is worth while calling attention to this departure, because it conforms to principles which are well recognized in modern educational methods. There is no argument so convincing as that furnished by a man's own experience, and it almost seems surprising that this experiment has not been tried before. To guard against the unintelligent use of the fertilizer the railroad company has selected with some care the farmers to whom it has made the offer, and the industrial department is keeping a close watch on the results that are being obtained. The cost of publicity, if we may call it so, is much less than would be that of the purchase and installation of experimental farms. Two farmers supplied with fertilizer in a community will draw the attention of the great mapority of that community even more surely than would the establishment of an experimental farm. While the results that these men may get will not be quite as striking, probably, as would be the results on a farm under the management of experts, these results will have a home application far stronger than would the results obtained by experts. The local interest that has been aroused already is quite intense, and it will now remain to be seen whether this interest will result in the purchase by the farmers of fertilizer at their own expense next year.

TO MAKE COMPETENT ENGINEMEN.

THE inquiries into the Stamford collision by the coroner, the Interstate Commerce Commission, the Connecticut Commissioners and the officers of the road, have been continued on four days during the past week. Not many additional facts have been brought out. Just what were Engineman Doherty's errors or omissions cannot be told with certainty; but all the evidence goes to confirm the opinion, expressed last week, that he simply waited too long before applying the brakes. The theory that he had made repeated applications unnecessarily, thus reducing the pressure in the main reservoir, has no support, and the theory that the brakes did actually go on effectively, when applied, is sustained by the testimony of the conductor of the train, who was thrown to the floor of the car by the sudden checking of the speed, and by the fact that the train broke in two. The conductor picked himself up as quickly as he could, and immediately thereafter the crash occurred. The brakes had acted satisfactorily at Noroton and at Bridgeport and also at another point where the engineman was alarmed by a man walking on the track, heedless of the train.

But the lesson to be learned does not depend on the facts of this particular case. It is admitted on all hands that Doherty had not had sufficient training in the management of fast and heavy passenger trains. Whatever may have been the drawbacks at Stamford he, by his own testimony, had had such clear warning of the possibility of inefficient action of the brakes that Mr. Bardo's conclusion, that no competent man in his right mind would have approached the distant signal at such high speed, seems to be the only conclusion possible. The road foreman had told Doherty that on [all] the new engines, as a class, the operation of the brakes was unsatisfactory. Doherty himself, on at least one occasion, had been unable to make a satisfactory stop, and Harmon had had that trouble three days before. No competent engineman reporting to the roundhouse man that an engine's brakes were "no good" would resume operation of the same engine on a fast train without knowing by personal trial whether the faults had been corrected. One is almost, if not quite, forced to the conclusion that Doherty, being a few minutes late, was so anxious to reach Stamford on time that he delayed the application of the brakes longer than his own judgment would have dictated.

The only remedy for such a condition is training. "Experience" is the word usually used, but the thing really meant is such a quality and quantity of experience as shall have taught the engineman how to guard against all possible pitfalls. Mr. Bardo, in speaking before the commissioners, said that safe service demanded that the men be made to understand that they are responsible to the public. This is an excellent idea; but no railroad manager can depend on it for practical results. His own reputation is bound up with that of his enginemen as a body and he must have something more tangible than such an undefined sentiment. To be loyal to the public involves not alone moral integrity but also intelligent knowledge of one's duties; and that is as definite as the study of the multiplication table. The public cannot go to a hundred enginemen and demand loyalty; the public does not know precisely what loyalty means. To the engineman it may mean that he must confess to inadequate knowledge of some detail of the brake apparatus, or of its manipulation. To be wholly loyal to the passenger he may some day have to stay at home and skip a trip, and lose $5 or $10, because he is worried about a sick wife or a troublesome debt, and cannot keep his mind on his work. To make perfect enginemen under the restrictions suggested here, calls for a course of education; and the superintendent is the only man who can effectively administer it. Even if the enginemen of a division generally are disposed to educate themselves, what assurance can there be that 100 per cent. of them will do the thing and do it successfully? Mr. Bardo said that 90 to 95 per cent. of the New Haven men were all right. That means, simply, that the other 5 or 10 per cent. constitute the problem. And the only way to reach the 10 is to examine these and also the other 90.

In short, the responsibility of running a fast train is so great that the only satisfactory standard of training is the highest possible standard. An inquiry into Doherty's qualifications would have to be very comprehensive, for his fault may be hard to define. So far as knowledge of air-brake operation is concerned, he ought to make a good showing, for his experience had been on freight trains, which usually are much more difficult to manage than are 8-car passenger trains. Mr. Bardo told the commission that he would proceed to revise the rule which was the subject of discussion. But if 90 per cent. of his men are satisfactory, perhaps the need is not for a revised rule but for more attention to the details of the enforcement of the rule. Surely, some men will learn in one-third the time necessary to educate others; why hold the bright ones back? The essential thing is a certain amount of education, not a certain number of months or miles which may be assumed to afford opportunity for education. There should, indeed, be a minimum number of months' service in each kind of work and each kind always in the proper order. On most roads the order is—1, firing on switcher or easy freight; 2, firing on freight (general); 3, firing on easy passenger; 4, firing on fast passenger; 5, running switcher; 6, running freight; 7, running fast freight; 8, running easy passenger; 9, fast passenger; but the main thing is that a competent man—the road foreman—shall be able to testify to the superintendent that each runner has demonstrated his ability. On a road where, as was the case formerly on the New Haven, there are not enough freight trains to serve as schools for passenger runners, the task of education is more complicated and more costly; but the course to be pursued is plain, nevertheless.

If the course here indicated seems too rigid and costly for every-day practice the reply is that rules are necessarily rigid; and that in matters where rigidity is in any respect intolerable, the rule should be suspended, but that the suspension should be attended to personally by a competent officer, in every instance. The best lesson in railroad discipline that has appeared for many a day is that published by the New York State Public Service Commission in its report on the Corning collision (*Railway Age Gazette*, January 17 and 31, 1913). In that report emphasis is laid on the necessity that the manager shall see that roundhouse foremen and trainmasters—the men who supervise train running—are individuals of strong character and that they shall be made to feel secure in their places. Here we see one of the main elements in the training of runners. It is to be added that these division officers should be paid well. What officer is more important, from the standpoint of safety? Some of these officers draw less pay than some of the enginemen whom they rule over. It may be added, also, that there should be enough of them. Many road foremen supervise the work of 100 runners, and often of more than that. It is difficult to see how one foreman can look after 100, or even 50, unless his territory is compact and he knows the runners pretty thoroughly *and favorably*, from long acquaintance.

We are not laying down an impossible standard, based only on academic considerations. If firemen have to be promoted rapidly the superintendent cannot always get his knowledge of the ability of young runners from the road foreman. Old runners must temporarily perform this function of the foreman. But these must be runners really qualified to instruct young enginemen and to clearly state the situation to the superintendent. A routine requirement, treating all the old runners as competent in this matter, is pretty sure to fall short of the needs of the situation. One of the four critics who were invited to New Haven from other roads said at one of the hearings that he would have kept Doherty on freight trains two years longer. That, however, does not meet the situation; the question is, What specific knowledge did Doherty lack, and what things must be done to supply the lack? This work might take one year and it might take three. Very much depends on what the

young runner learned while he was firing. Some learn much, others far less. No number of years could be considered a satisfactory training for a fireman who had to gather his knowledge from an unfriendly runner; and the unfriendliness which is known to exist between the enginemen's and firemen's brotherhoods is said to show its effects in the everyday life of the men in many cabs.

There is room for an extensive enlargement of the road foreman's work. Not only should there be an ample number of men; they should have the aid and co-operation of the enginemen in more thoroughly instructing firemen. The process of educating men to be runners begins, of course, while they are still firing. Why should not substantial premiums be paid to the enginemen who should best fit their firemen to be runners? If there is anything of the nature of unfriendliness in the cab, it is an indication of an intolerable situation, demanding to be cured.

Mr. Bardo quite directly charged the brotherhoods with weakening discipline. We shall not dispute a word that he said. There are all too many instances of such results on many roads. But it is pertinent to say that he did not show any connection whatever between this wrong influence and the particular failure now under discussion. Those newspapers which recognize the bad influence of the labor unions are quick to take up the matter of the abrogation of the two-year rule, and to argue from it. But it must be noted that two years, or four, might not have cured Doherty's deficiencies; and that two months, possibly two weeks, of instruction, rightly used, in all probability would either have made Doherty competent to handle the big new engine, or else would have demonstrated his lack of the qualities necessary for that position.

THE SIGNIFICANCE OF THE STATE RATE CASE DECISIONS.

THE meaning of the part of the Supreme Court's opinion in the state rate cases dealing with state interference with interstate commerce is clear enough. It is, in effect, that Congress has discretionary power to pass any legislation it may deem necessary to stop and prevent state regulation that directly or indirectly burdens or interferes with interstate commerce, but that Congress has not exercised its full authority, and until it does so the states may practically fix rates as they see fit as long as they do not make them confiscatory. This squarely "puts up" to Congress the entire question of regulation of rates. State legislatures and commissions repeatedly have so adjusted rates as to interfere with interstate rates and to promote local at the expense of national interests. The Interstate Commerce Commission and the Commerce Court, in their opinions in the Shreveport case, have described and discussed the heretofore successful effort of the Texas Railroad Commission to compel the railways to discriminate unfairly in favor of shippers in Texas as against shippers in Louisiana who were competitors against them for business in Northeast Texas.

Such state regulation has not been confined to Texas. For years the regulating authorities of certain states have sought to so adjust intrastate rates as to give the producers and jobbers of those states a practical monopoly of their markets. It is the plain duty of Congress, in the interest of the national welfare, to give the Interstate Commerce Commission power to so control state regulation as to prevent national interests from being subordinated to local interests. Likewise there is much state regulation of operation, such as full crew laws, that burdens interstate commerce without conferring the slightest benefit on the public. Whatever action may be necessary to relieve commerce of these burdens, Congress ought to take it.

While the meaning of the part of the opinion relating to state interference with interstate commerce is clear enough, the significance of the portion relating to valuation will be found, on a careful reading of the whole, to be far from certain. The court evidently accepts the view that valuation should be based on the present value of the property. It also evidently accepts the view that the main factor in present value is the cost of reproduction. But it does not make clear its idea as to how the present cost of reproduction is to be ascertained. The railways contended that it would cost them more to acquire their land for railway purposes than its value for other purposes, and that on the reproduction theory, land should be appraised at what it would cost them to acquire it. On this phase of the matter the court says:

> It is said that the company would be compelled to pay more than what is the normal market value of property in transactions between private parties; that it would lack the freedom they enjoy, and in view of its needs it would have to give a higher price. It is also said that this price would be in excess of the present market value of contiguous or similarly situated property. . . . It is impossible to assume in making a judicial finding of what it would cost to acquire the property that the company would be compelled to pay more than its fair market value. It is equipped with the governmental power of eminent domain. In view of its public purpose it has been granted this privilege in order to prevent advantage being taken of its necessities. It would be free to stand upon its legal rights and it cannot be supposed that they would be disregarded.

In other words, the court flatly refuses to see that railways, even when they take land under the power of eminent domain, do have to pay more than other persons, and says that their valuations must be made upon the theory that they do not have to pay more. It takes the theory and lets the true facts go. The Supreme Court must know, regardless of its dialectics, that in cases arising under the law of eminent domain juries habitually hold railways up. In the case of a new railway which has had to pay perhaps $200 an acre to acquire land that is worth only $100, the rigorous application of the principle laid down would mean the confiscation of $100 of its investment in every acre of its land.

The court also shows in another respect a singular aptitude for disregarding patent facts. In all the state rate cases decided last week and the week before it apparently holds that if a certain schedule of rates is confiscatory as to one of two competing railways and not confiscatory as to another, the railway as to which they are not confiscatory must accept them. It gives the weak railway Hobson's choice saying, in effect: "You may take either confiscatory or non-confiscatory rates. But in any event your competitor must make rates which as to you are confiscatory, and if you are not bankrupted by making the confiscatory rates you will be bankrupted by losing business because you do not meet them." The principle laid down is a principle of confiscation by indirection as distinguished from a principle of confiscation by direction. The conclusion of the Supreme Court is in substance, that a given schedule of rates may be unreasonable as to one road, and reasonable as to another operating in the same territory and handling the same kind of traffic. Only the judicial mind can tell how a given schedule of rates may at the same moment be both reasonable and unreasonable. This is law because the Supreme Court says so. But it is neither economics nor business. When Lord Eldon said that the law was common sense he did not foresee the decision in the Minnesota rate case.

The court is destructive, but justifiably so, in its criticism of the way in which some of the valuations made by the railways themselves and introduced in testimony in these state rate cases were made. Some of these valuations were hardly scientific guesses. It was on equally solid ground in criticising the use of gross earnings as a basis for dividing the value of railway property between state and interstate business. As it clearly pointed out, to use gross earnings as the basis of division is to reason in a circle. There will, however, be great difficulty in working up the data regarding "use units" and the cost of the various kinds of service which the decision will make it necessary for the railways to introduce in testimony in future cases involving the question of confiscation.

The more one studies the opinions in these state rate cases the stronger will his impression grow that the future of the

railways of the United States is in the hands of the public and the regulating commissions, and not of the courts. The Supreme Court seems to make plain that it will not set aside government made rates on any railway—at least those made by the authority of the national government—unless they are proved by each railway to be confiscatory as to it. Now, rates may be such that at least the more prosperous railways in each territory cannot prove they are confiscatory as to them, and yet such as to so reduce the net earnings of the railways as a whole as to gravely interfere with the adequate development of transportation facilities. As a matter of law, the question may be whether the rates are confiscatory. As a matter of public policy, the question always is, not whether they are confiscatory, but whether they are such as to promote the development of railway facilities and thereby further the public welfare. The courts, in determining whether rates are confiscatory, merely fix the minimum below which they may not be reduced. Congress and the Interstate Commerce Commission have a legislative discretion which they may so exercise as to permit the railways to earn whatever return public expediency demands that they shall be allowed to earn. The maximum which railways should be allowed is an economic question, a question of public policy, and it is to be hoped that it will be dealt with as such.

EQUIPMENT NOTES AND A BAD BOND MARKET.

NOW is a time when new issues of railroad long-term bonds are particularly difficult to float. Since this unfavorable bond market coincides with a heavy demand for improved railroad facilities, particularly equipment, and with prospects of further heavy demands for equipment, due to large crops, the comparative advantages of an issue of notes, secured by collateral or general credit, and of the issue of equipment trust certificates is a question that has faced a good many railroad officers. Recently there has been issued $19,700,000 Pennsylvania general freight equipment trust 4½ per cent. certificates, $4,410,000 5 per cent. equipment gold notes of the Chicago, Rock Island & Pacific, $5,000,000 Southern Pacific equipment trust 4½ per cent. certificates, and $1,900,000 Missouri, Kansas & Texas equipment trust 5 per cent. notes, and it was announced not long ago that the Boston & Maine had sold $7,500,000 equipment trust 4½ per cent. notes, which announcement superseded a previous announcement of the issue of 20-year debenture notes. On the other hand, the companies making up the New York Central system have outstanding more than $100,000,000 one-year notes.

The bankers for the Pennsylvania offered that company's equipment trust certificates at prices to yield 5 per cent. The Southern Pacific 4½'s were offered at 98; the Missouri, Kansas & Texas 5 per cent. equipment notes on a basis to yield 5⅜ per cent., and the Chicago, Rock Island & Pacific on a basis to yield about 5½ per cent. The New York Central's various issues of notes were offered at slightly varying prices, yielding in the neighborhood of 5⅜ to 5½ per cent. The New York Central itself issued earlier in the year $12,540,000 4½ per cent. equipment trust certificates on a basis to yield 4.65 per cent.

It would seem that equipment trust certificates command a somewhat higher price from investors than would notes of the same company, secured by an issue of general bonds. Certainly they command a better price than would notes secured simply by the general credit of a railway company. In the past it has been customary to require the payment of at least 10 per cent. of the cost of equipment on which equipment trust certificates are issued to be paid by the railroad company in cash. Sometimes this has been as high as 15 per cent.; and in the case of the Missouri, Kansas & Texas equipment trust notes, 20 per cent. was paid by the railroad company in cash. Thus from the investor's viewpoint, not only has he when buying equipment trust notes security directly on tangible property, but he is also assured of a substantial equity directly back of his investment. Furthermore, equipment is in the nature of a salable asset. Even if in the reorganization of a bankrupt property the receivers should decide to permit a default on equipment trust certificates and to let the security for these certificates be sold, a bidder other than the reorganization committee representing this railroad might possibly be obtained for the equipment. As a matter of fact, in the only instance that we know of where equipment trust notes were allowed to go to default by the receivers, these notes were guaranteed by the company which sold the equipment, and the equipment itself was taken back by the builders and resold without, so far as is known, loss to the holders of the certificates.

Receiverships, however, have never come at the beginning of a period of great car surplus when the roads going into bankruptcy also had a surplus of equipment. Whether a receiver might not feel justified in defaulting on an equipment issue under such circumstances is a question. If the condition of car surplus was country wide and severe, second-hand equipment would not probably be a salable asset. Under conditions such as these it is quite conceivable that holders of car trust certificates of a bankrupt road might suffer at least temporary loss in interest; but even then their position would probably be better than holders of unsecured notes or junior securities of the second or third class. There is a certain simplicity in the security of an equipment trust issue which is entirely lacking in the position of junior securities, even when secured by a mortgage on specific property. These are all points which the market price of equipment trust certificates reflects.

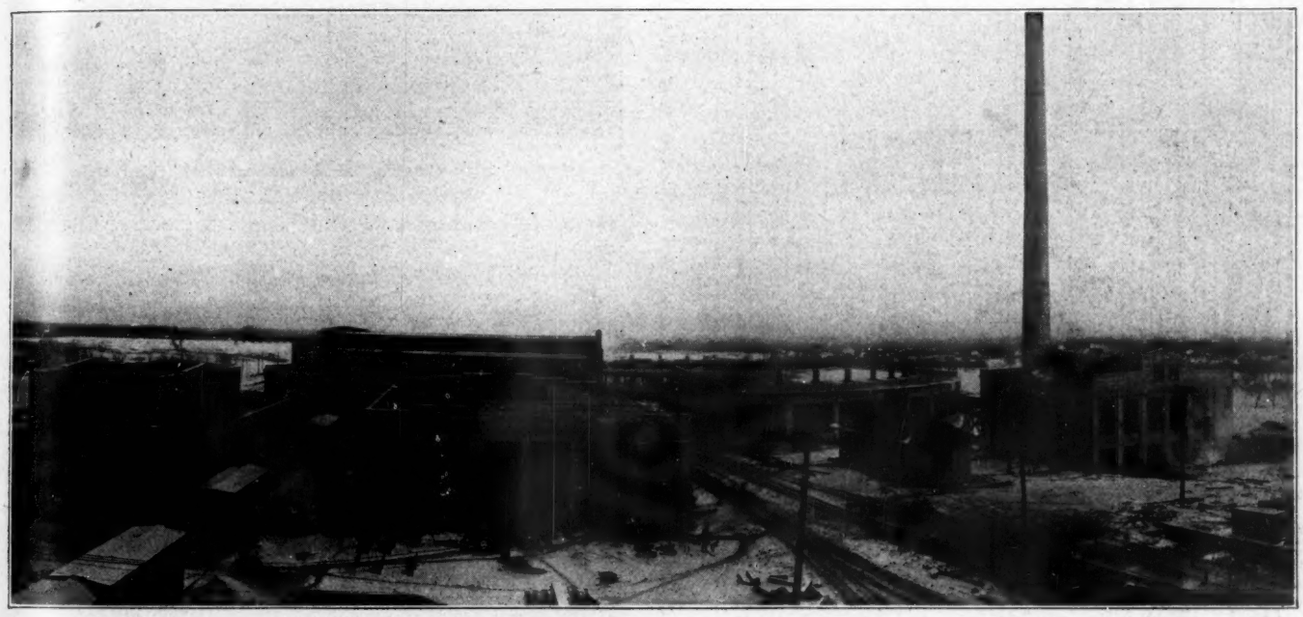
The chief advantage from the railroad company's point of view for the issue of equipment trust certificates is in the comparatively high market price for which they can be sold. There are, however, certain rather obvious disadvantages to a railroad company in burdening itself with equipment trust issues. The general use of equipment trust or car trust certificates is comparatively recent. Certain companies, however, have issued equipment trust certificates for a number of years. In 1874 the Pennsylvania had one thousand leased coal cars presumably represented by some sort of equipment trust or car trust certificates. At the end of 1912 the Pennsylvania had issued a total of 105,300,000 equipment trust certificates, the greater part of which, of course, have been retired at various times. Since the indenture securing equipment trust certificates usually provides for the retirement of a certain proportion of these certificates semi-annually or annually, the railroad company has to be continually providing cash to meet these maturing instalments of principal, and this to a road which cannot afford to carry a very large amount of cash on hand, is in itself a source of continual care. It may be under certain circumstances, an actual menace. It is not generally possible to renew equipment trust certificates. The road with a sound credit can always renew short term notes if it is willing to pay a high enough price for its money, but an issue of short term notes, part of the proceeds of which were to be used to provide funds for the retirement of equipment trust certificates, would not presumably be looked on with favor by bankers or investors.

The Interstate Commerce Commission's rules for accounting, provide for a charge to be made each month to expenses for depreciation of equipment. If a railroad company is forced to make a charge for depreciation of equipment and at the same time to provide funds out of current earnings to pay the principal of equipment certificates falling due periodically, it is in a position of both setting up a charge for depreciation and providing a sinking fund to take care of depreciation. Since, however, the charge to operating expenses is a bookkeeping charge only, it would seem that a railroad company might so adjust its equipment certificate maturities as to make the amounts in a given half year about equal the charges for depreciation. By doing this the company would overcome one of the objections to the Interstate Commerce Commission system of charging for depreciation—namely, that this charge is a matter of bookkeeping only—and at the same time avoid the duplication involved in setting up a sinking fund and a depreciation charge for the same property.

ILLINOIS CENTRAL MECHANICAL TERMINAL.

Construction of an Important Division Terminal at Centralia, Ill., Which Was Carefully Designed and Well Equipped.

The Illinois Central has recently installed at Centralia, Ill., a mechanical terminal for the handling of cars and locomotives that is one of the most complete and up-to-date terminals in this country. Centralia is one of the most important freight terminals on the Illinois Central system, being located on the main line from Chicago to New Orleans north of the junctions where the traffic from the Y. & M. V., the Birmingham line, the Kentucky division, and the southern Illinois coal fields joins that of the main line from New Orleans and just south of Branch Junction, where the northbound traffic separates that for Chicago and the east going up the main line and that for central Illinois, Iowa, Omaha and the west, going over the Springfield and Wisconsin divisions. This makes Centralia the logical point for a very complete classification of freight, so that a large part of the traffic can move to northern and western points in full train lots, thus relieving congestion and reducing switching in the yards north of Centralia, and making possible somewhat quicker delivery to northern and western points. To handle this classification, the company completed and put in operation last summer, a 3,000 car yard with a hump for northbound business, provision being made in the design for an ultimate capacity of 9,000 cars. The design and construction of this yard were described in the *Railway Age Gazette* of August 9, 1912. The new mechanical terminal cares for the engines of the St. Louis, Springfield and Illinois divisions, which terminate there, and includes complete facilities for making both heavy and light repairs to these locomotives, and also for repairing any bad order cars received at this point.



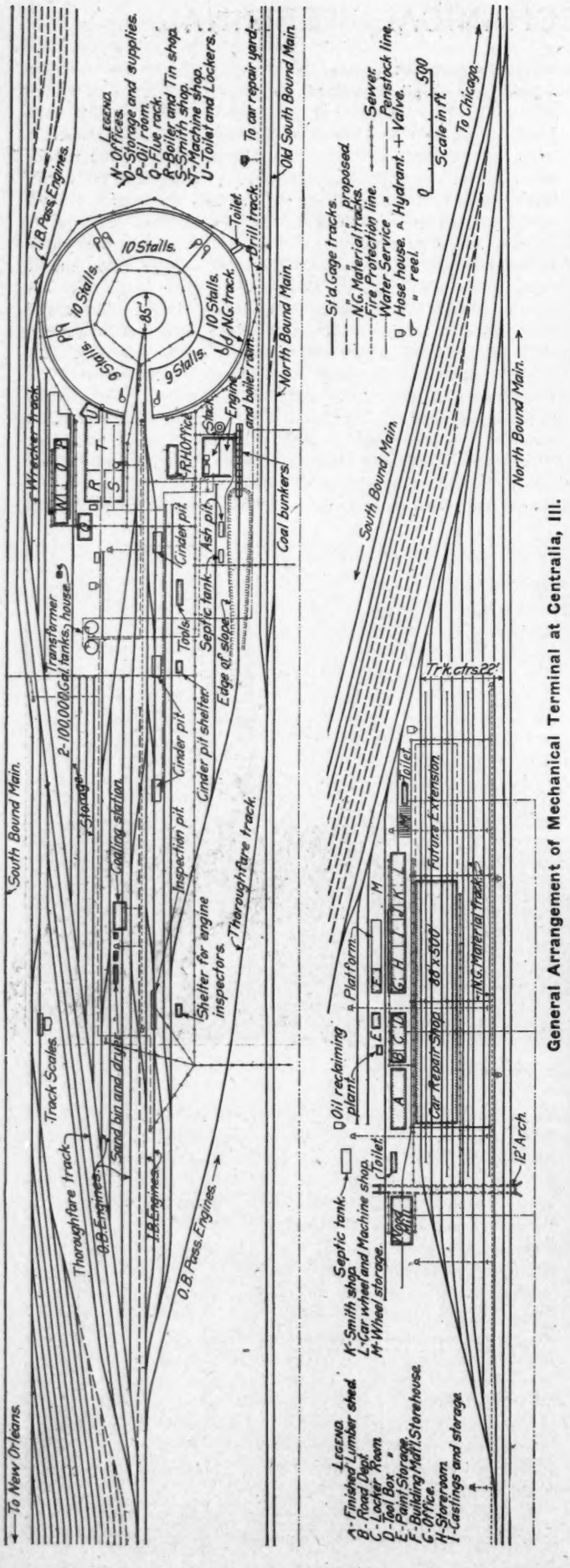
General View of Locomotive Group.

YARDS.

On account of the topography of the ground available for use, it was necessary to make the locomotive and car departments practically independent of each other, except for the common use of water, air, heat and electricity. The car group is located about 2,000 ft. north of the north end of the locomotive group. The arrangement of yards and buildings is shown in the accompanying illustrations. The engine house has a single opening, to the south, enabling all freight engines to enter and leave the house without reverse movements, but requiring passenger engines leaving or taking trains at the Centralia station, which is north of the yard, to run about 2,500 ft. south of the roundhouse and reverse. Passenger locomotives inbound to the house, leave the main track north of the extreme limits of the yard, taking an engine lead alongside the double track lead to the southbound tail switching yard. Passing just west of the roundhouse this track connects with the main ladder of the engine yard, at the south end of which connection is made with the inbound tracks to the house. Southbound freight engines pull their trains into the southbound switching yard, run through to the south end of this yard and return on the thoroughfare track which connects directly with the inbound engine tracks to the roundhouse. Northbound freight engines leaving their trains in the northbound receiving yard at the extreme south end of the terminal, use this same thoroughfare track to reach the house. There are two inbound engine tracks, one running straight into the house without passing over either the inspection pits or the cinder pits. The other crosses the inspection pit and the three cinder pits, with crossovers just beyond each cinder pit to enable an engine on the rear pit to run around an engine still standing on one of the pits ahead. Crossovers are also provided to reach the coaling station if it is desired to coal an engine before taking it into the house. Inbound engines may water at a penstock just back of the inspection pit.

Outbound engines from the house can use one of three tracks, two of which pass the coaling station. A penstock located just outside of the roundhouse, and another just beyond the coaling station, allowed outbound engines to take water conveniently. Freight engines take the southbound thoroughfare track directly from the outbound engine tracks to reach either the northbound or southbound departure yards. Passenger engines run down one of the outbound tracks to the main ladder, down this ladder to the thoroughfare tracks, take a crossover to the northbound thoroughfare tracks, reverse and take that track over to the old southbound main, which they use as a northbound thoroughfare track, to the north end of the yard.

In addition to the running tracks, the engine yard includes a wrecker track close to the roundhouse, an oil car track along-



General Arrangement of Mechanical Terminal at Centralia, Ill.

side the storehouse, a material track on the other side of the storehouse, three stub end switch tracks for coal and material, a coal track under the coaling station, a crane track and cinder track alongside the cinder pits, a cinder track to the boiler cinder pit, and a coal track to the power house bunkers. The car repair yard consists of eight tracks with a capacity of about 250 cars, exclusive of the tracks serving the lumber sheds and storerooms in connection with the car group. There is a separate lead

Interior of Erecting Shop.

track to this yard from the south alongside the engine thoroughfare track.

ENGINE HOUSE.

The buildings of the locomotive department are arranged in a compact group and are uniform in general design. They are built of brick on concrete footings with composite roofing, laid on concrete slabs in the case of the machine shop and power

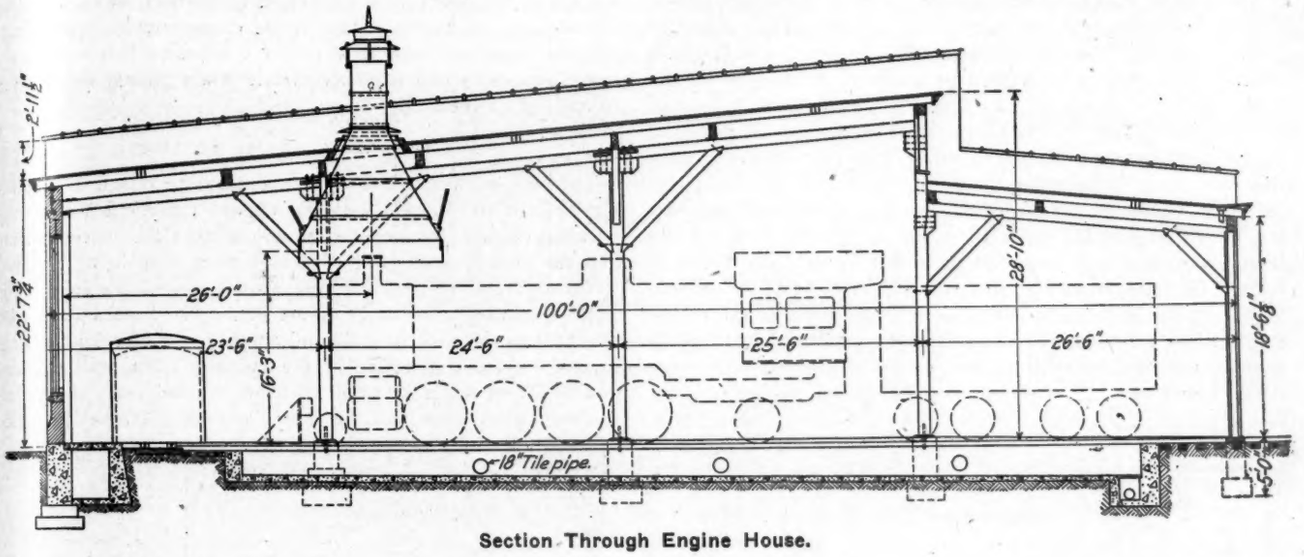
Interior of Engine House.

house, and on timber roofs for the roundhouse and storehouse; the office building roof being of slate.

The engine house has 48 stalls in a 50 stall circle, of which 39 stalls are used for housing engines. Since practically 100 engines are handled in and out of Centralia in 24 hours, this house provides one stall for 2½ engines per 24 hours. The house is 100 ft. deep from outside of back wall to inner posts, the

width of stalls center to center of posts being 14 ft. The circle is divided into five sections by four brick fire walls, three containing 10 stalls each and two containing nine each. One of the nine stall sections is designed for an erecting shop. Kinnear fireproof doors are used for all openings in the fire walls.

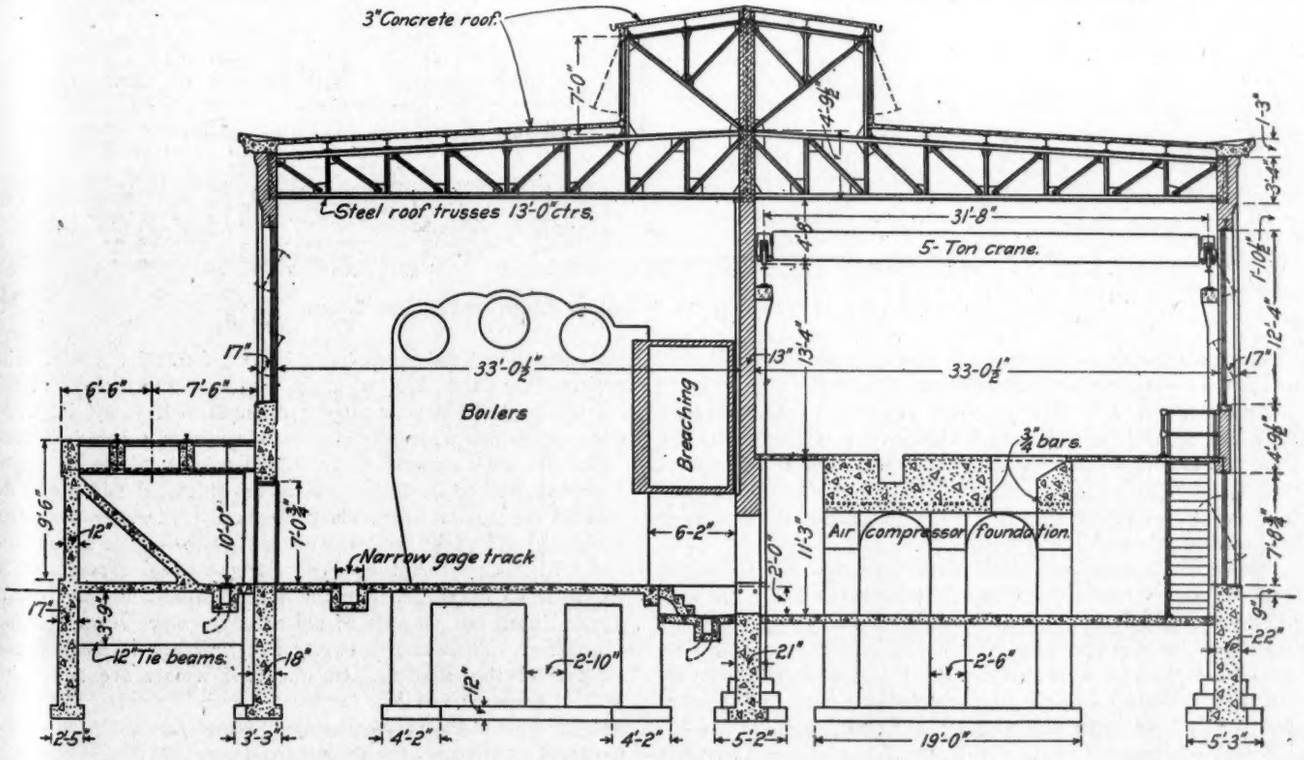
The continuous foundation under the outside wall and the sash. The smoke jacks are Dickinson 36 in. cast iron. The roof is five ply tarred felt and pitch with composition surface. The floor of the house between pits is of vitrified paving brick, laid on rolled sand with cement grout filling. A continuous 24 in. gage material track is laid just inside the outer wall of the house with connections to the erecting shop and machine shop.



Section Through Engine House.

pedestals under the interior columns are of concrete, designed for a bearing pressure on the soil of 3,000 lbs. per sq. ft. The outer wall is designed to confine the damage from a runaway locomotive to a single panel. This is accomplished by the use of 15 in., 42 lb. I-beams spanning between pilasters at the tops of the

The concrete walls of the engine pits are carried down 4 ft. below top of rail, each wall being 2 ft. 4 in. wide with a 7 in. slab connecting the two to form the bottom of the pit. This slab has a slope of 6 in. in the 75 ft. length of the pit and is crowned 1 in. along the longitudinal center line for drainage.



Section Through Power House.

windows, which carry the wall above that level. The windows and the portion of the wall between the pilasters may be torn out without injuring the support of the roof or the adjacent panels. Fenestra steel sash are used for the windows in all of the buildings, with the Peerless tension operating device for movable

The 85 lb. rails used on the pits rest directly on the concrete, being secured by rail clips through which are passed ¾ in. bolts set in the concrete. The 3 in. x 3 in. x ¼ in. angles protecting the inner corner of the concrete and the 6 in. x 12 in. and 6 in x 10 in. creosoted timbers which are placed outside of each rail

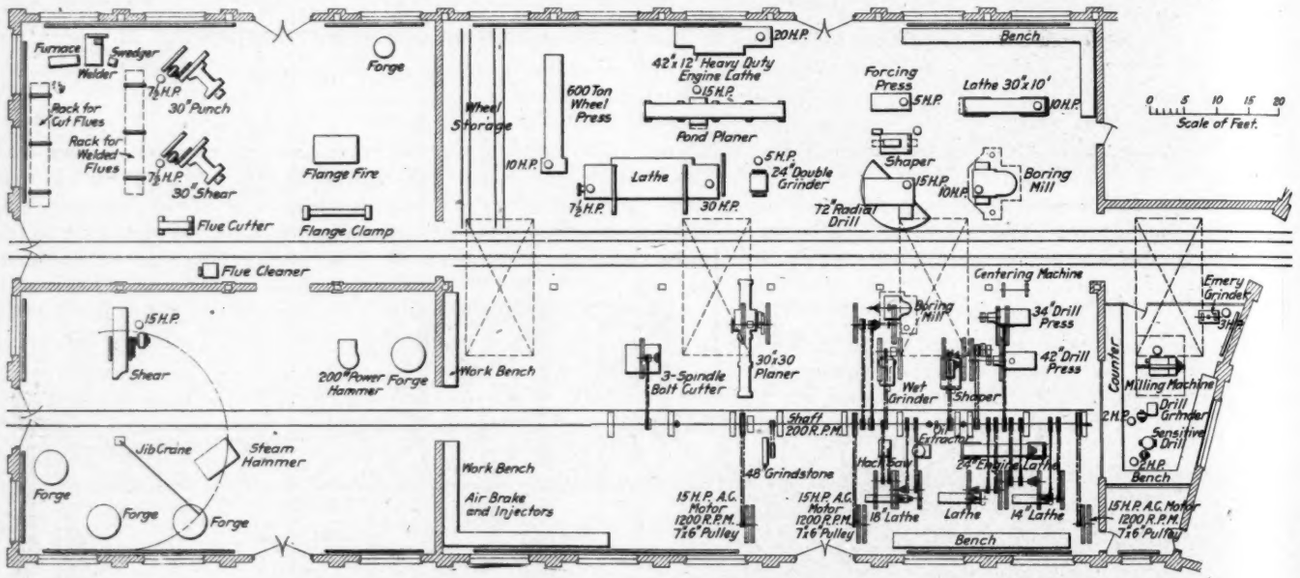
to protect the surface of the concrete, are also held in place by ¾ in. bolts set in the concrete. The water accumulating in the pits is drained to a concrete duct one foot square, laid around the inner circle of the house which collects all drainage into five manholes spaced at equal intervals about the circle from which an outlet to the sewer system is obtained.

The engine house, as well as all the other buildings in the locomotive department, is heated by exhaust steam from the power house. This steam is distributed through a pipe laid in a concrete duct about 3 ft. square just inside the foundation for the outer wall. A branch of this pipe at each pit leads to the pit radiators and other branches are carried up to the wall radiators which are supported on the pilasters between windows. Cast iron was used in preference to the ordinary iron or steel coils, as the latter are so susceptible to corrosion from gases and water. Each pit has 432 sq. ft. of radiation, and the total for the house, including wall radiation, is 26,000 sq. ft. The house is lighted by tungsten lamps, three of 250 c. p. each, being provided between engine pits with a switch and cutout box for each stall. Four Westinghouse receptacles for extension cord plugs are also provided for each pit, and a three phase, 440 volt power circuit along the wall of the outer circle allows the use of portable electrical tools, such as lathes, boring bars and flue cutters.

that of the roundhouse. Latticed steel columns support steel roof trusses on which is laid a timber roof of the same type as that used on the roundhouse. The steel construction in the erecting shop is necessary to support the cranes and is feasible, since no live engines are kept in this shop, the gases from which would corrode the steel. No smoke jacks are necessary in this section of the house, and the height of the roof is increased to allow room for the operation of the cranes and to provide additional light and ventilation. The ventilation is ample to remove any gases that may accumulate while getting locomotives in and out of the shop.

MACHINE, BOILER AND SMITH SHOPS.

The machine, boiler and smith shops are contained in a building 80 ft. x 160 ft., which closely adjoins the erecting shop, the triangular space between the square end of the machine shop and the curved outer wall of the erecting shop being enclosed to form part of the former. The shop is a steel frame building, latticed channel columns being set in the brick walls flush with the inner surface of the wall, and another row of columns being located on the center line of the building. The wall columns and the brick walls between them are carried on a continuous concrete foundation, and the center row of columns is carried



Arrangement of Tools in the Machine, Smith and Boiler Shops.

An overhead washout line and a compressed air line are carried on the roof bracing with connections at each stall.

The turntable is 85 ft. in diameter and built to the company's standard design. It is equipped with a Nichols electric tractor, designed to turn the table through one revolution in one minute. The standard pit of this road is now being provided with inspection pockets alongside the pit to allow a man to oil and inspect the tractor thoroughly and easily.

The erecting shop is located in the nine-stall section of the roundhouse west of the entrance. It is designed for handling the heavy repairs to locomotives at this plant, the light running repairs being made in the roundhouse proper. Seven of the tracks are provided with driving wheel drop pits equipped with two 30-ton Watson-Stillman hydro-pneumatic jacks. The other two tracks have truck drop pits which are equipped with a 15-ton jack of the same type. A 7½-ton Whiting crane having a span of 52 ft. serves this shop, being of the special compensated gearing type for operating on circular runways. Standard and narrow gage connections between the erecting shop and machine shop are provided to allow engine parts handled either by the jacks or the crane to be moved easily into the machine shop, where work is to be done upon them.

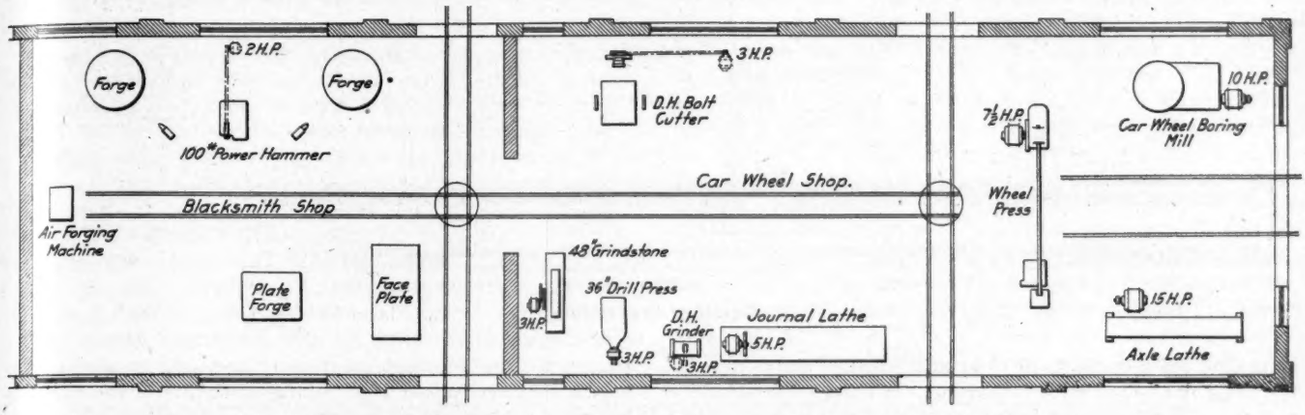
The roof construction in the erecting shop is different from

on concrete pedestals spread to a bearing 5 ft. 6 in. square. The columns are 21 ft. 10¾ in. high, with connecting struts at the top which reduce their unsupported length to 15 ft. 8¼ in. A 5-ton crane which serves the machine shop is supported by brackets on the steel columns 13 ft. 10¼ in. above the floor. These brackets carry 15 in. 42 lb. I-beams on which are laid the 60 lb. rails for the crane runway. The columns support steel roof trusses designed for a span of 40 ft., having a depth of 4 ft. at the wall and 6 ft. 2 in. at the center line of the building. These trusses are built up of angles with the exception of the lower chord of the trusses on one side of the building, which support a line of shafting. These chords have channel sections to facilitate the hanging of this shafting. On the roof trusses are laid 8 in. 18 lb. I-beam purlins 5 ft. center to center, spanning the 16 ft. between trusses and supporting the 3 in. concrete roof slab. This roof slab is reinforced with American Steel & Wire No. 4 triangular mesh reinforcement, and is covered with four ply tarred felt and pitch with a composite surface. Skylights and 36 in. ventilators are provided over the center of the building. Two lines of narrow gage and one of standard gage track serve these shops. The floor is of concrete 5 in. thick, with a granitoid finish. The machine shop proper is divided into two 40 ft. bays, all the tools in one bay being motor driven, and those in the

other being belt driven. The tool equipment is very complete, many new machines being installed besides those used in the old shops. The motor driven tools are operated on a three phase, 60 cycle, 440 volt a. c. circuit.

THE POWER HOUSE.

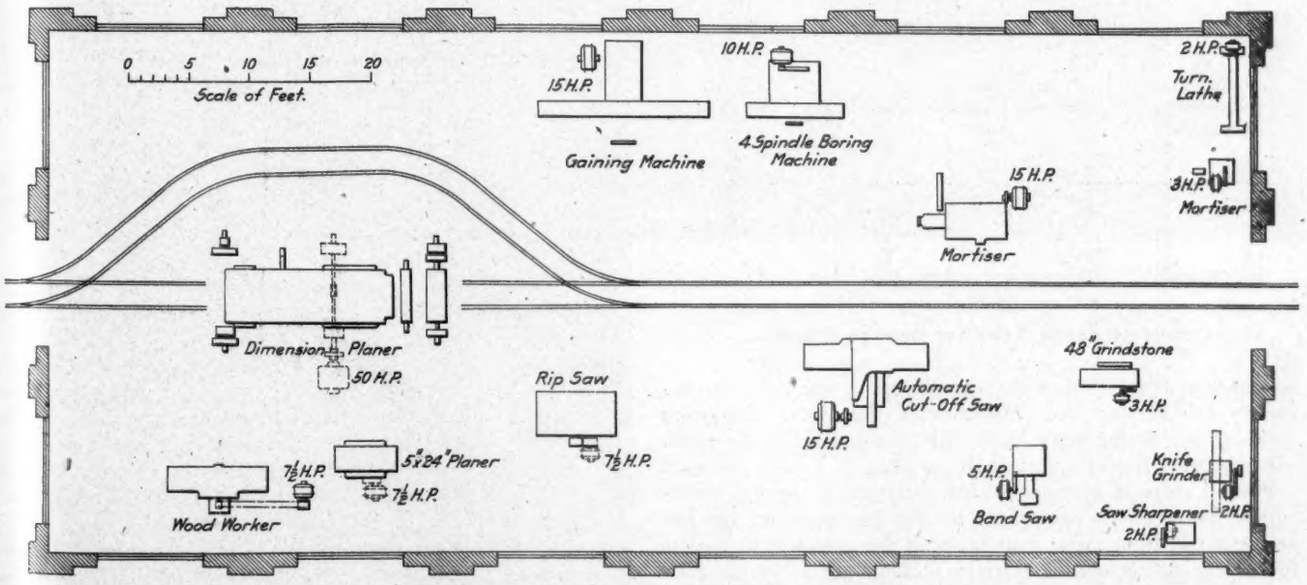
The power house is one of the most important buildings in the locomotive group. On account of the arrangement of the terminal it is necessary to drive all the machinery either directly or indirectly by electricity, and since there was not adequate central station service it was decided to install an up-to-date electric plant. The building is 60 ft. x 80 ft., divided longitudinally in the middle by a 13 in. brick wall into an engine room and boiler room. A heavy concrete foundation is required under the boilers and under the machinery in the engine room. The roof trusses and monitor framing are of steel carried directly on the brick walls. A 5-ton Whiting hand operated crane in the engine room is carried on 9 in. brick pilasters with stone caps which support longitudinal I-beam girders for the runways. The roof slabs are the same as in the machine shop. The floors are of concrete with granitoid finish.



Arrangement of Equipment in the Car Department Wheel and Smith Shops.

The equipment consists of four 250 h. p. Stirling water tube hand fired boilers operating at 150 lbs., a 2,000 h. p. Cochrane horizontal feed water heater, two 250 k. v. a., 3 phase, 60 cycle, 400 volt General Electric, non-condensing, turbo-generators, two 1,000 cu. ft. air compressors, besides other auxiliary power equipment. An automatic oil storage and filtering system handles all the oil used by the turbines, air compressors and pumps. Space has been reserved in the engine room for the installation of a locomotive boiler washing and refilling system. The electric power is distributed to the other buildings by cables carried on steel transmission towers with concrete pedestals. The pipe lines from the power house to the roundhouse are carried in a 5 ft. x 6 ft. concrete tunnel, and the hot water pipes for heating the car department buildings are carried in a concrete conduit having special provision for expansion, which was an important consideration in the adoption of hot water in preference to steam for heating the buildings of the northern group. The pipes, which are about 2,500 ft. long, are carried on expansion rollers to allow free movement due to expansion and contraction, and two loops are provided in the line to take up this movement.

The coal bunker alongside the boiler room is of reinforced concrete of a special design, having a capacity of 400 tons. The outer wall of the bunker is 1 ft. 3 in. thick, reduced in the panels to 12 in. The inner wall is formed by the wall of the power-

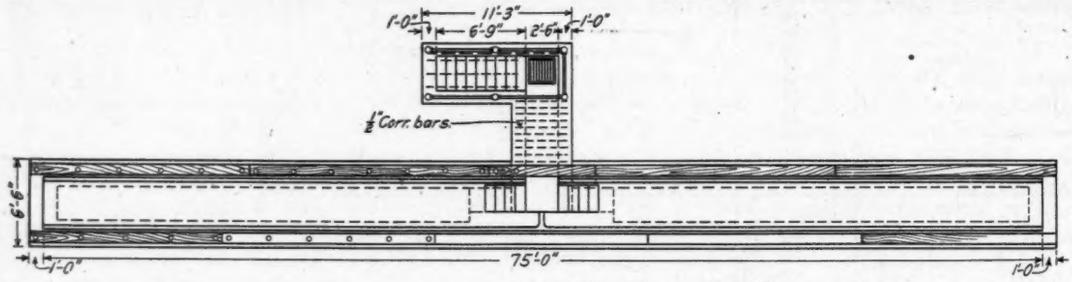


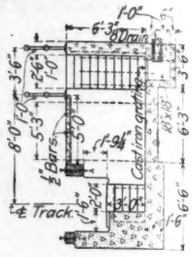
Layout of Machine Tools in the Wood Mill.

house. Concrete beams 12 in. thick and 3 ft. 9 in. deep on 13 ft. centers support the 6 in. floor slab of the bunker, and 6 in. vertical walls over these beams support a similar slab which is sloped up from the floor level at the inner wall on a slope of about 1 to 1 serving to hopper the bunker. The track over the bunker is carried by 24 in. 80-lb. I-beams under each rail, which are connected to the web of similar I-beams set transversely on the concrete walls at intervals of 13 ft. These beams are covered with concrete for protection. The base of rail is 10 ft. above

the floor of the boiler room and the extreme width of the bunker is 12 ft. 8 in. There are six 7 ft. doors in the wall between the bunker and the boiler room, allowing the coal to fall through on the boiler room floor. These doors have cast iron jambs and lintels. A drain pit is provided at the lowest point of the bunker to lead to the sewer any water which may collect.

The chimney for the power house is of concrete, the shaft being 204 ft. high, and the footings carried down 5 ft. and spread to 28 ft. square. The outside of the shaft is tapered, the diameter at the bottom being 14 ft., and at the top 8 ft. 6 in. The concrete shall has a thickness of 15 in. at the bottom and 6 in. at the top, being reinforced with vertical bars. A lining of fire blocks is carried up 70 ft. from the top of the footing, this lining having a uniform inner diameter of 8 ft. The inside diameter above this lining is 7 ft. 6 in. The lining is 4½ in. thick, and is entirely separate from the concrete shell, leaving an air space between the two which is 16½ in. wide at the bottom. The smoke opening into the chimney is 4 ft. 6 in. x 12 ft. 3 in., the fire block lining being carried through this opening to connect with the flue lining. The chimney is designed to allow for a boiler overload of 50 per cent., and provides for the burning of low grade coal.

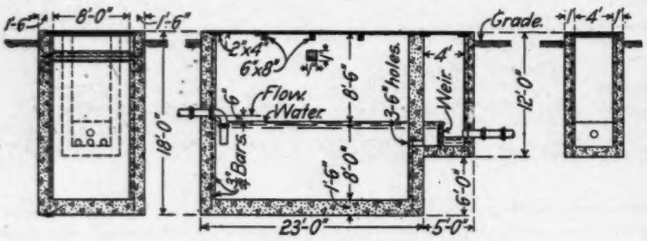




Detail of Inspection Pit.

STORE HOUSE AND OFFICE BUILDING.

The store house is 30 ft. wide and 170 ft. long. The south end, which is devoted to offices, is two stories high. The store keeper and master mechanic have offices on the first floor, and the second floor is taken up with a record room, rest room for engineers and firemen, and an apprentice classroom. The store house proper is one story high, with an oil room at the north end, separated from the rest of the building by a brick fire wall.



Details of Septic Tank for Sewage Disposal.

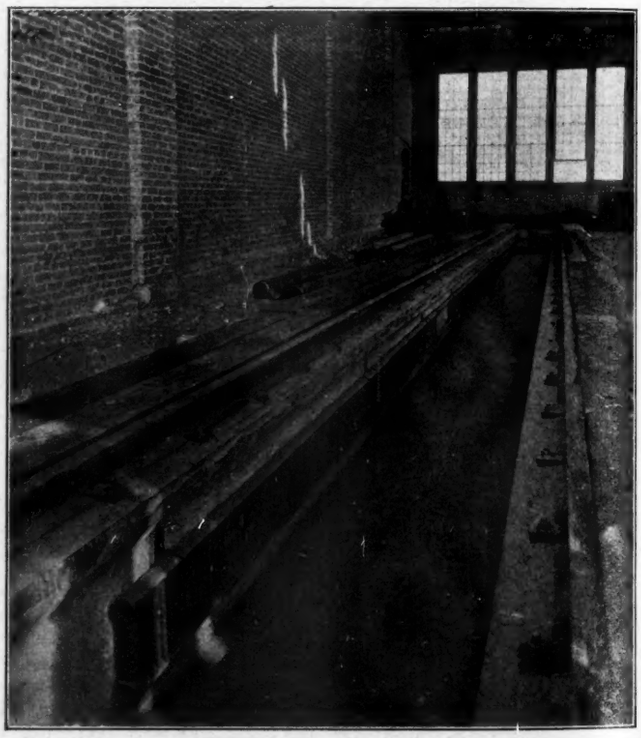
The oil room is provided with the Bowser system of distribution, power pumps being provided for handling fuel, car and kerosene oils from the storage tanks in the basement to faucets for filling barrels on the platform. Hand pumps of the self-measuring type are also provided for all kinds of oil held in storage. Some long distance rotary pumps are located in the erecting shop about 800 ft. from the oil room and have given satisfactory service.

The concrete platform 45 ft. wide across the north end of the building with extensions along both sides, is built at car floor level to allow material to be unloaded directly. The building is of brick construction with the same type of roof as that used on the roundhouse. The store house and oil room are to have a concrete floor which will be placed as soon as the danger of settlement in the fill is passed.

The roundhouse office is a single story brick building 20 ft. x 65 ft., with a slate roof. In addition to the office of the roundhouse foreman it contains shower baths, toilet rooms and locker rooms for the enginemen. Special care has been taken in the design of this terminal to provide for the comfort of the men off duty. Many of them have runs which allow them only a few hours at Centralia, and such men are enabled to take a shower bath and change clothes in the roundhouse office building, and then spend their spare time in the rest room in the store house building, where comfortable chairs, games and reading matter are provided for them. The comfort of the shop men is also well looked after, a large toilet and locker room being provided between the machine shop and the erecting shop, and special toilet rooms being included in each of the principal buildings.

CINDER, INSPECTION, COAL AND WATER FACILITIES.

The three cinder pits and the inspection pit are of concrete construction. The cinder pits are not unusual in design, the surface of the concrete being reinforced with old rails in the usual manner to prevent damage by the clam shell which is used in removing the cinders. The inspection pit is unique in having an underpass which allows the inspector to get under the locomotive without the danger and inconvenience incident to crawling under in the usual manner. It is the intention to develop the use of this pit as much as possible, and to handle as many of the minor repairs as can conveniently be done at this



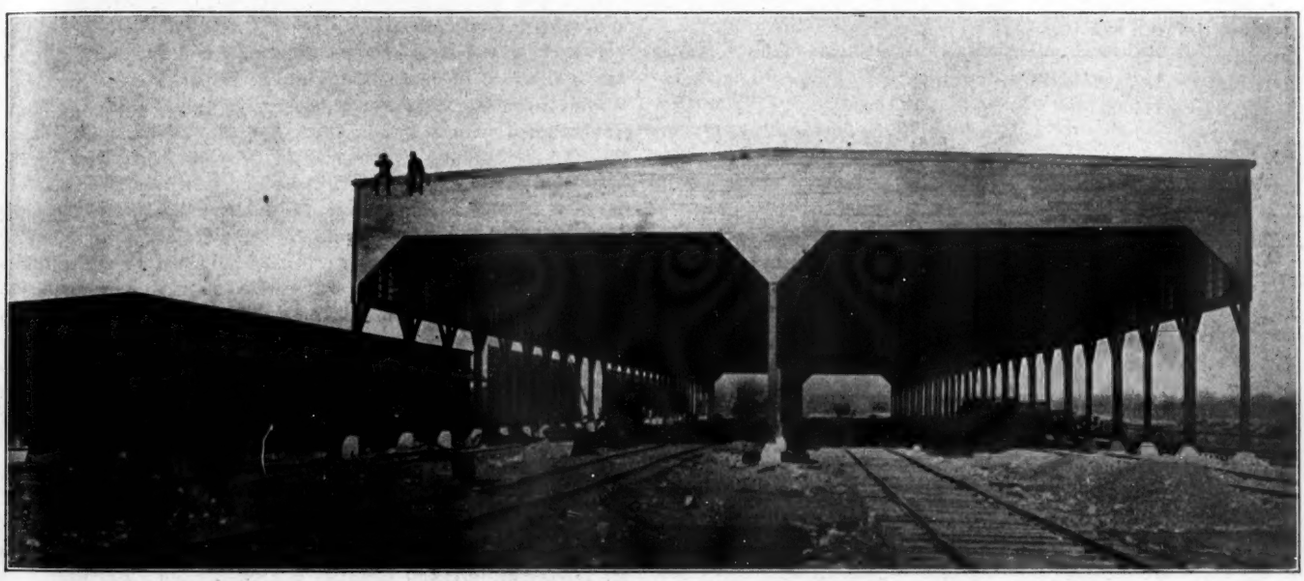
Typical Engine Pit.

place instead of in the roundhouse. The pit is 75 ft. long, 4 ft. wide and 3 ft. 6 in. deep below the top of rail. It is formed by two concrete walls 1 ft. 3 in. thick supporting 8 in. x 10 in. timbers to which the rails are spiked. The footing connecting these two walls is carried down 8 ft. below the top of rail with a slab 1 ft. 6 in. thick at the bottom of the walls, and another 6 in. thick forming the bottom of the pit. The entrance for the inspector is opposite the center of the pit and 9 ft. 9 in. from the center line of track. A flight of 10 concrete steps leads down to a cross passage 6 ft. 6 in. below the top of rail, which is covered by a 4 in. reinforced concrete slab. After passing under the near rail in this passageway, the inspector goes up a flight of five steps toward either end to reach the pit level. All drainage from the pit and the entrance is led to a sump at the bottom of the entrance stairway from which an 8 in. drain leads to the sewer. The details of this design are shown in one of the accompanying drawings. The pit required 99.5 cu. yds. of concrete.

A number of small frame shelter buildings are provided for the men stationed in the yard, such as the inspector and the cinder pit men. No old box car bodies which are so frequently used as shelters in such yards will be allowed.

The coaling station was built by the T. W. Snow Construction Company. It is of timber construction with a storage capacity of 600 tons of coal and 20 tons of dry sand. The elevating machinery is of the double bucket, or semi-balanced skip hoist type, and is able to handle 75 tons of coal per hour. The track over the depressed hopper has a 0.5 per cent. grade rising from the hopper so that a switch engine can set in a string of loads on this track beyond the station to be dropped down by gravity one at a time and unloaded. The empties are allowed to accumulate on the other side of the station until an engine is available to remove them. A sand drying stove is provided in the building which shelters the motor equipment adjacent to the coaling station. The dry sand is elevated to the storage pocket by compressed air.

The supply of engine water is secured from two 100,000 gal. tanks, four Poague type penstocks being provided in the yard. These penstocks are set in concrete frost proof pits. The tanks are of select long leaf cypress, creosoted, the hoops being of wrought iron. Each tank support is carried on five piles.



Open Car Repair Shed Before the Yard Was Surfaced.

CAR DEPARTMENT BUILDINGS.

The buildings in the car department consist of a covered shed over four repair tracks in which repairs can be made in weather which would prevent men working without shelter, and the service buildings arranged alongside the repair yard to facilitate the handling of material. The car repair shed is 500 ft. long x 88 ft. wide, and is of timber construction throughout. Three lines of posts support wooden roof trusses, the lower chords of which are 22 ft. above the top of rail. The ends of the shed are covered with siding down to the bottom of these trusses, and the sides are enclosed for 7 ft. below that line, a large portion of this space being occupied by windows, however. Skylights are provided in the roof in every other bay alternating on opposite sides. The posts are set on concrete pedestals 2 ft. square. The posts in the middle row are 8 in. x 10 in., and those in the outer rows 8 in. x 8 in. The roof trusses are framed of four 2 in. x 8 in. timbers in the lower, and four 2 in. x 10 in. timbers in the upper chord, with 2 in. x 8 in. timbers double latticed. These trusses have a roof pitch of 5/8 in. per ft. They are spaced 16 ft. center to center and support 2 in. x 8 in. purlins on 16 in. centers, which carry the roof boards covered with the composition roofing. The four standard gage tracks provide a capacity of about 50 cars, and the yard outside of the shed will accommodate about 200 cars more. The narrow gage material tracks in the shed and the yard make it possible to carry material on roller bearing cars to within 25 ft. of any desired point.

The service buildings are of brick, with the exception of the finished lumber shed, which is of timber construction. The wood mill has steel roof trusses supporting a 3 in. concrete slab of the same design as that used in the machine shop and power house. The other brick buildings have composition roofs laid on timber.

An innovation in railroad shop practice is the use of hot water for heating all buildings of the car department. Heat for the system is obtained from a heater located in the engine room of the power house which utilizes exhaust steam for heating the water. Circulation of the water is effected through two 5 in. pipe lines. From the power house to the various buildings of the car department the two 5 in. circulating lines of the system are contained in a concrete conduit described above. The radiation in all of the buildings is of the cast iron wall type, and from observations taken during the past winter the hot water system has proved to be a decided success, satisfactory temperatures being maintained in the various buildings, even during extremely low temperatures outside.

The maximum distance through which the hot water is transmitted in one direction in the heating system is 2,635 ft., the extreme building being the toilet located north of the service building in the car repair yards. The obtaining of satisfactory heat

in buildings located over 2,600 ft. from the source of heat supply is practically impossible with the use of low pressure steam under ground conditions prevailing at Centralia, and the results obtained have fully justified the judgment of the engineers in departing from the usual practice of either using high pressure steam or providing a separate boiler plant conveniently located to furnish the required amount of steam. The heating plant was installed by the Kehm Brothers Company, Chicago.

WATER SERVICE FACILITIES.

The water service facilities of the terminal include three separate systems, the fire protection line, the penstock supply, and the service line which supplies water for drinking, flushing sanitary sewers, flushing cinder pits, boiler water supply, etc. All hydrants are plainly marked to eliminate confusion and errors due to using the wrong one. The water is secured from the city mains at 40 lbs. pressure. Since the water at times is unfit for drinking purposes, an alum filter and purifier is installed in the roundhouse from which the treated water is piped to drinking fountains at various points about the plant.

The elevation of the tanks gives a pressure of about 20 lbs. on the fire line, which carries 125 lbs. pressure, however, when the centrifugal fire pump is in operation. This pump has a capacity of 1,500 gals. per minute. The fire line runs from the tanks to the fire pump in the power house and, leaving this pump, divides, one branch going north to the car group and the other

Service Buildings Adjoining the Car Repair Shop.

subdividing to reach the buildings of the locomotive group. The line to the roundhouse is connected to the overhead washout line along which are located 10 swing wall hose reels, each with 100 ft. of 2½ in. hose. A similar hose reel is provided in the machine shop. An automatic sprinkling system is installed in the coaling station and there are four hydrants protecting the buildings of the south group, the one back of the roundhouse being enclosed in a hose house which is provided with 200 ft. of hose. The line to the northern group of buildings serves eight hydrants located at convenient points for the protection of the buildings and cars in the repair yard. The fire line from tanks to the pump is of 12 in. pipe, the main line to the northern group is 8 in., and most of the branches are 6 in., with a few short ones 4 in. The penstock line divides at the tank, one branch going north to the penstock at the roundhouse, the other going south to the three penstocks in the yard. These lines are all of 12 in. pipe. The service line has numerous branches reaching the machine shop, power house and cinder pits in the locomotive group and a locker room and toilet in the northern group. The three water systems required 5,000 ft. of 8 in., and 9,000 ft. of 6 in. wood stave pipe, and 3,400 ft. of 4 in., 2,730 ft. of 6 in., 3,865 ft. of 8 in. and 2,600 ft. of 12 in. cast iron pipe.

Separate storm and sanitary sewer systems were installed. All down spouts on buildings empty into 6 in. pipes leading to the storm water sewers, which also receive the drainage from the turntable pit, coal bunker, penstock pits, inspection pit, etc. Vitrified pipe in 8 in., 10 in., 12 in., 15 in., and 18 in. sizes is used for these sewer lines. The outlet for the storm water sewers of the southern group is a 60 in. pipe laid under the yard and for the northern group a standard 12 ft. arch. The sanitary sewers lead to septic tanks, as the terminal is surrounded by a farming district making necessary some treatment of the sewage before discharging it into drainage ditches. Two tanks are provided which are practically identical, being designed to retain the sewage for 24 hours. The one serving the southern group of buildings is a concrete pit 23 ft. x 11 ft. in plan and 18 ft. deep with the top of the concrete 1 ft. above grade. The walls are 1 ft. 6 in. thick, reinforced with ¾ in. rods set vertically and horizontally. The tank is covered with a wooden frame on which 2 in. x 4 in. timbers are nailed with narrow openings between in order to allow circulation of air over the contents of the tank. The sanitary sewer empties into this tank 8 ft. 6 in. above the bottom, the discharge pipe being turned down inside the tank to keep its open end below the level of the contents of the tank. This level is fixed by the outlet at the opposite end of the tank at an elevation 8 ft. above the bottom. The outflow is through three 6 in. holes in the concrete wall which connect with a second tank 5 ft. x 6 ft. in plan and 12 ft. deep with 1 ft. walls, attached to the large tank, having its top at the same elevation. The outlet from the large tank is just above the bottom of the small one and near the water level in the big tank. A weir is provided in the small tank over which the discharge flows to reach the outlet pipe.

The construction of the buildings in the mechanical terminal was carried on in connection with the construction of the yard. Work on the buildings was begun during July, 1912. The filling was handled with a standard gage steam shovel outfit. When the fill at a building was over 8 ft. deep, as in the case of the wood working shop, the concrete foundation was put in up to the floor level, the fill made around this foundation and the walls of the building placed afterward. The piers for the car repair shed and the lumber shed were also built before the fill was placed. In this case the fill was carried as close as possible to a row of piers, the construction track thrown over the piers and the process of filling continued. The car repair yard was put into operation December 10, 1912, and the locomotive facilities January 10, 1913.

The construction of both the yard and the mechanical terminal was carried out under the direction of A. S. Baldwin, chief engineer, and D. J. Brumley, formerly engineer of construction. The design of the mechanical terminal was under the direction of F. L. Thompson, formerly engineer of bridges; J. A. Taggart, architect, supervising the design of the buildings. The late M. H. Dance, division engineer of construction, was in charge of the field work. The mechanical details were handled by Willard Doud, formerly shop engineer, under the supervision of M. K. Barnum, formerly general superintendent motive power. T. S. Leake & Co., Chicago, were the general contractors for all masonry and building work, except the coal chute.

SHORTENING THE ROUTE BETWEEN PARIS AND NICE.—A scheme is afoot for shortening the present route between Paris and Nice. Some years ago the Paris Chamber of Commerce of the Maritime Alps passed a resolution in favor of constructing a new direct railway, but this recommendation was pigeonholed until recently. A congress was recently held at Nice, and an official commission has also been formed to investigate the proposal. The Nice congress had a number of schemes before it, each of which forms part of the main project. The first step advocated is the buying up of the Southern Railway, which it is proposed to hand over to the Paris, Lyons & Mediterranean. Then it is proposed to build several cut-off lines, specially built for fast running, and finally the construction of a new railway line from Dragingnan to Castellane has been suggested. If these schemes are carried out, the present roundabout journey via Marseilles will become a thing of the past.

TRAIN ACCIDENTS IN MAY.[1]

Following is a list of the most notable train accidents that occurred on railways of the United States in the month of May, 1913:

Collisions.

Date.	Road.	Place.	Kind of Accident.	Kind of Train.	Kil'd.	Inj'd.
1.	C. C. C. & St. L....	Middletown.	bc.	P. & F.	0	22
12.	Mobile & O.....	Vick.	bc.	P. & F.	0	4
13.	Chi. R. I. & P.....	Seneca.	rc.	F. & F.	2	2
19.	Int. & G. Nor.....	Kouns.	bc.	P. & F.	1	27
23.	C. C. C. & St. L....	Belle Center.	bc.	P. & P.	0	9
26.	Baltimore & Ohio....	Parkersburg.	xc.	P. & F.	1	3
26.	Pitts. S. & N.....	Camp Burke.	bc.	F. & F.	1	1
27.	Missouri Pacific.....	Brant.	bc.	P. & P.	4	40
27.	Pennsylvania	Niles.	bc.	P. & F.	2	2
30.	Southern	Sheffield, Ala.	bc.	P. & P.	0	36

Derailments.

Date.	Road.	Place.	Cause of Derailm't.	Kind of Train.	Kil'd.	Inj'd.
1.	Chi. R. I. & P.....	Colby, Kan.	washout.	F.	2	0
9.	Baltimore & Ohio....	Triadelphia.	.....	F.	2	1
†13.	Northern Pacific	Lake View.	unx.	P.	4	8
14.	Seaboard Air Line...	Rice.	exc. speed	F.	3	0
18.	Erie	Preble, Ind.	exc. speed	P.	2	2
21.	Mobile & Ohio.....	Holman.	sand.	P.	1	2

The trains in collision near Middletown, Ohio, on the 1st, were southbound passenger No. 25 and northbound freight No. 82, first section. Both engines were wrecked and several cars in both trains badly damaged. Sixteen passengers,, four employees and two postal clerks, were injured. The cause of the collision was improper block working.

The trains in collision at Vick, Ala., on the 12th were southbound passenger No. 103 and northbound freight No. 178. Both engines were wrecked and four trainmen were slightly injured. The men in charge of the freight forgot about the passenger train.

The trains in collision at Seneca, Ill., on the 13th were eastbound freights, the leading train being at rest. Two passengers in the caboose of the standing train were killed and two others injured. The collision was due to disregard of automatic block signals, the second train having passed a distant and a home, both set against it.

The trains in collision near Kouns, Tex., on the 19th were southbound passenger No. 7 and a northbound freight. The fireman of the freight was killed and 8 trainmen and 19 passengers were injured. Both trains were running at good speed and the engines were badly wrecked. The front end of the baggage car of the passenger train was demolished and three cars of cattle in the freight train were crushed. The passenger train had passed Kouns in disregard of an order requiring it to wait there for the freight.

The trains in collision near Belle Center, Ohio, on the night of the 23rd were southbound passenger No. 43 and northbound passenger No. 126. Five passengers and four employees were slightly injured. The collision is attributed to the failure of the headlight of the engine of No. 43. This train had right over No. 126 and later was given a meet order with No. 126 at Yelverton, a non-telegraph station. Under the orders No. 126 should have taken the siding. No. 43 arrived at the meeting point half a minute ahead of No. 126 and held the main track. The headlight being out, the engineman on No. 126, seeing no headlight, thought that No. 43 had arrived at the meeting point first and had taken the siding and covered the headlight in order to avoid delay.

The trains in collision at Parkersburg, W. Va., on the 26th were an engine drawing one sleeping car, and a freight train moving slowly. Two passengers and the conductor and the engineman of the freight were injured, the engineman fatally. There was a dense fog at the time.

The collision at Camp Burke, N. Y., on the 26th was between a northbound work train and an extra freight train, southbound. The engineman of work train was killed and its conductor slightly injured. Both engines and three freight cars were badly damaged. The cause of the collision was failure of the operator at Angelica to deliver an order to the work train.

The trains in collision near Brant, Mo., on the 27th were westbound passenger No. 11 and eastbound passenger No. 12. Both enginemen and two other trainmen were killed and 40 passengers were injured. The cause of the collision was the issuance of conflicting meeting orders by the despatcher, and a false clear manual block signal. Both men experienced.

The trains in collision on the Pennsylvania Lines near Niles, Ohio, on the night of the 27th of May were westbound passenger No. 215 and an eastbound freight. The engineman of the passenger and the fireman of the freight were killed and two other trainmen were injured.

The trains in collision at Sheffield, Ala., on the 30th were passenger No. 106 of the Northern Alabama and passenger No. 35, second section, of the Southern Railway. The N. A. engine was wrecked and 33 persons injured; few seriously. The collision was due to the neglect of the men in charge of Second 35, who overlooked the schedule of No. 106, which was superior.

The train derailed near Colby, Kan., on the 1st was a work-train consisting of an engine, caboose and platform car, the latter being ahead of the engine. The cause was the undermining of the roadbed because of an unusual flow of water following a cloudburst. The roadmaster, riding on the engine, was killed, and the fireman was fatally injured.

The train derailed at Triadelphia, W. Va., on the 9th was a southbound through freight, and ten cars fell down a bank. Two trespassers riding on the train were killed and a brakeman was injured. A part of the wreck fell on the track of the West Virginia Traction Company's street railroad.

The train derailed on the Northern Pacific, near Lake View, Wash., on the 13th, was a southbound passenger of the Oregon-Washington R. & N. Company. Three passengers and one brakeman were killed and 8 passengers were injured. The derailment occurred at a point where track repairs were in progress.

The train derailed at Rice Station, Ga., on the night of the 14th consisted only of a locomotive, running backward. It was running at high speed around a curve. The only explanation of the cause is that probably speed was excessive. Of the 3 men on the train, the engineman and the flagman were killed and the fireman was fatally injured. A tramp walking along the track saw the wreck and ran to the aid of the injured men; and he was severely scalded on the arms and hands in his efforts to rescue them. A passenger train following the engine was stopped by a farmer who had heard the sound of the wreck.

The train derailed at Preble, Ind., on the 18th, was eastbound passenger No. 8. The train was running at high speed and was not properly slackened on entering a detour track. The engineman and fireman were killed and two passengers were injured.

The train derailed near Holman, Ala., on the night of the 21st was southbound passenger No. 105, and the engine and baggage car were overturned. The fireman was killed and the engineman and one passenger were injured. The cause of the derailment was sand on the track which had been washed down from the bank by a heavy rain.

[1]Abbreviations and marks used in Accident List:
rc, Rear collision——bc, Butting collision——xc, Other collisions——k, Broken——d, Defective——unf, Unforeseen obstruction——unx, Unexplained——derail, Open derailing switch——ms, Misplaced switch——acc. obst., Accidental obstruction——malice, Malicious obstruction of track, etc.——boiler, Explosion of locomotive on road——fire, Cars burned while running——P. or Pass., Passenger train——F. or Ft., Freight train (including empty engines, work trains, etc.)——Asterisk, Wreck wholly or partly destroyed by fire——Dagger, One or more passengers killed.

HSIN-NING RAILWAY, CHINA.—The construction of a section for nearly 25 miles between Niuwan opposite Kungi and Kongmoon via Hsinhui on the Hsin-Ning Railway was started in October, 1909, and was opened to traffic in October, 1911. A distance of 3 miles from Kongmoon to Peichiehkow will be ready for traffic soon. Tracks are already laid from Kungi up to Toushan, but from Toushan to Sanchiahai the work is not completed.

NARROW GAGE EQUIPMENT FOR THE EAST BROAD TOP.

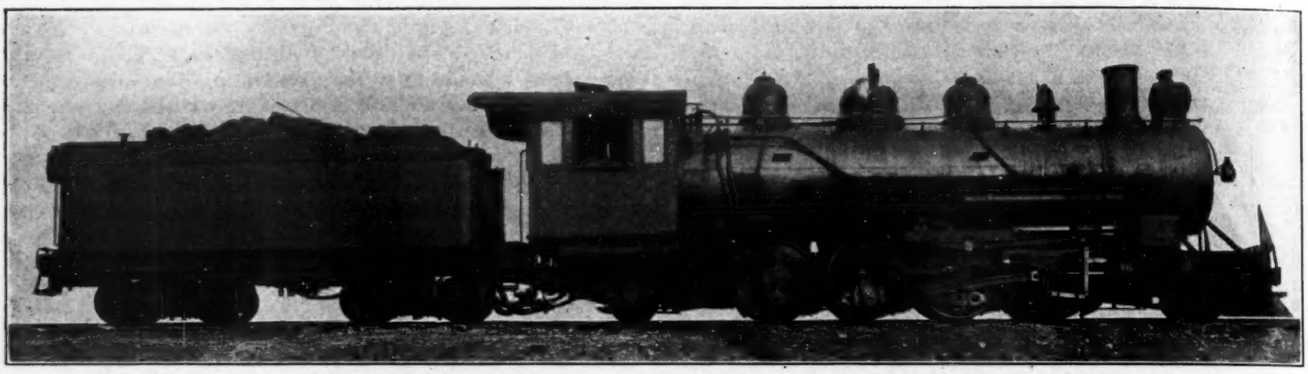
The East Broad Top Railroad & Coal Company, which operates about 50 miles of 3 ft. gage track in the mountains of Pennsylvania, has recently added to its rolling stock a mikado locomotive and a number of steel hopper cars, the latter, it is believed, being the only all-steel narrow gage hopper cars in use in the United States.

The locomotive was built by the Baldwin Locomotive Works, Philadelphia, and was designed to meet the following conditions: Curves, 17 deg. on main line, 23 deg. on Ys; grades, 2½ per cent.; rails, 60 lbs. per yard; tunnel clearances, height 13 ft., width, 8 ft. 8 in.; weight on driving wheels, not to exceed 124,000 lbs.; total weight of locomotive, not to exceed 150,000 lbs. It is similar to a lighter locomotive of the same type, constructed for this company in 1911. The increase in tractive effort and total weight is in each case about 25 per cent., while on a heating surface basis the new locomotive shows an increase of 32 per cent. over the design of 1911. With a boiler providing 283 sq. ft. of heating surface per cubic foot of cylinder volume, and a ratio of adhesion of 4.43, the new locomotive is similar in its proportions to many of the most successful standard gage locomotives having the same wheel arrangement and using saturated steam. The tractive effort exerted is 27,700 lbs.

The boiler is of the straight top type and designed for a working pressure of 200 lbs., but the safety valves are set at 180 lbs. in service.

The steam distribution is controlled by balanced slide valves, which are set with a lead of ¼ in. and are driven by a straight line arrangement of Walschaert valve gear. The structural parts supporting the gear are arranged to serve also as frame braces. The trailing truck is of the Rushton radial type, with outside journals.

The tender has capacity for 4,000 gal. of water and 7 tons of coal. The frame is composed of 8 in. channels, and the trucks are of the arch-bar type. All truck wheels under the locomotive and tender are steel tired. Air sanders, automatic couplers and Westinghouse schedule 6 ET combined automatic and straight air brakes are used, with two 9½ in. compressors.



Narrow Gage Mikado Locomotive for the East Broad Top Railroad & Coal Company.

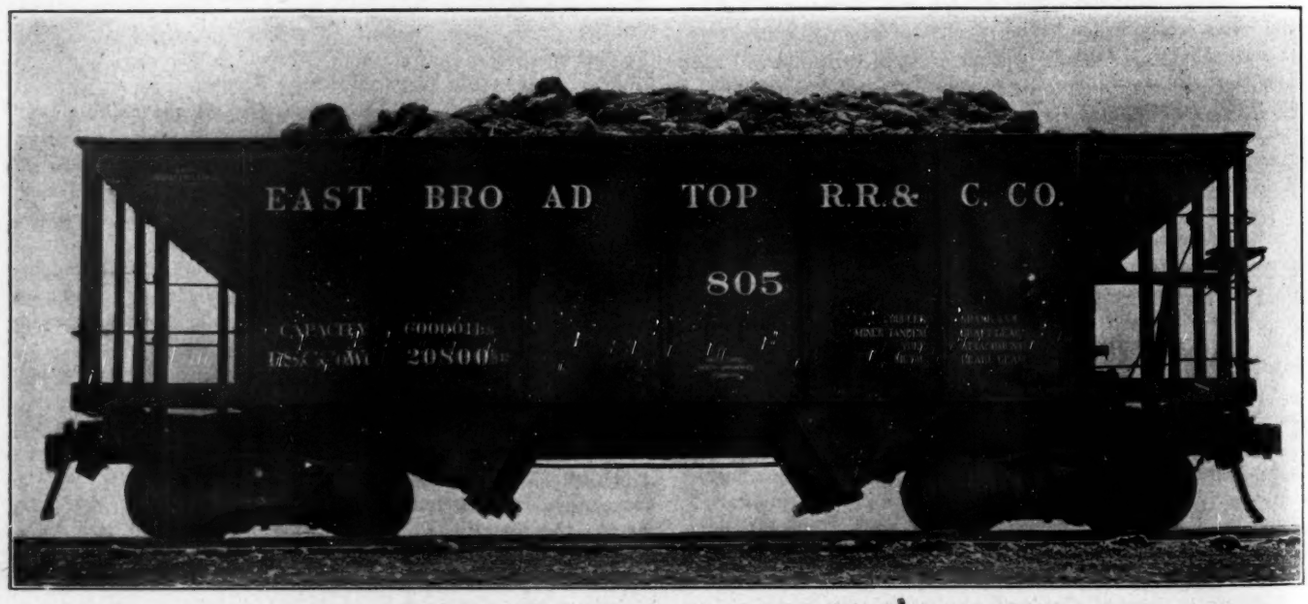
The following are the principal dimensions and data:

General Data.

Gage	3 ft. 0 in.
Fuel	Soft coal
Weight on drivers	122,700 lbs.
Weight on front truck	9,000 lbs.
Weight on back truck	15,450 lbs.
Weight, total engine	147,150 lbs.
Weight, total engine and tender	230,000 lbs.
Wheel base, driving	13 ft. 0 in.
Wheel base, rigid	13 ft. 0 in.
Wheel base, total engine	27 ft. 5 in.
Wheel base, total engine and tender	53 ft. 0 in.

Boiler.

Type	Straight
Working pressure	180 lbs.
Diameter	62 in.
Thickness of sheets	13/16 in.



Narrow Gage All-Steel Hopper Car of 60,000 lbs. Capacity.

Staying	Radial
Firebox, length and width	96 in. x 54 in.
Firebox, depth, front	56½ in.
Firebox, depth, back	53¾ in.
Firebox, thickness of sheets, sides	5/16 in.
Firebox, thickness of sheets, back	5/16 in.
Firebox, thickness of sheets, crown	⅜ in.
Firebox, thickness of sheets, tube	½ in.
Tubes, number and diameter	230—2 in.
Tubes, length	17 ft. 6 in.
Heating surface, firebox	131 sq. ft.
Heating surface, tubes	2,097 sq. ft.
Heating surface, total	2,228 sq. ft.
Grate area	36 sq. ft.

Cylinders.

Kind	Simple
Diameter and stroke	19 in. x 24 in.

Wheels.

Driving, diameter	48 in.
Driving journals	8½ in. x 8 in.

Tender.

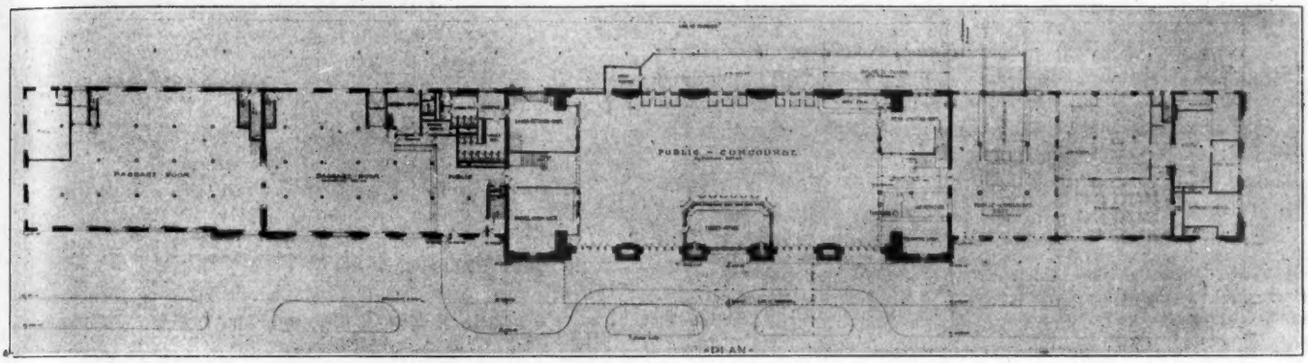
Wheels, number	8
Wheels, diameter	26 in.
Journals	4¼ in. x 8 in.
Water capacity	4,000 gals.
Coal capacity	7 tons

The hopper cars, which were built by the Pressed Steel Car Company, Pittsburgh, Pa., are of 60,000 lbs. capacity and weigh about 20,700 lbs. each, the body weighing 12,000 lbs., and the trucks 8,700 lbs. The body bolsters are built integral with the underframe and each bolster consists of one ¼ in. open hearth steel web plate with a malleable iron center brace, and is reinforced at the top with a flange and the floor of the car and at the bottom with a 12 in. x ⅜ in. plate and 3 in. x 3 in. x 5/16 in. rolled angles. There is one cross bearer located at the center of the car and composed of angles and 3/16 in. plates. The car is equipped with four doors, operated by the Lind door gear. The end sheets are ¼ in. thick, and are reinforced at the top and bottom with a flange; the floor and side sheets are 3/16 in. thick. The two center sills are made of 10 in., 20 lb. channels and extend between the bolsters, being tied together and reinforced at the top with a 15½ in. x ¼ in. plate. The draft sills are also 10 in., 20 lb. channels extending from the end of the car to about 2 ft. back of the bolster. The end sills are 6 in., 8 lb. channels, and the sub-end sills are of ¼ in. pressed steel, reinforced at the top and bottom with flanges; the side sills are 6 in., 8 lb. channels extending from the bolsters to the end sills. The general dimensions of the car are as follows:

Length inside	25 ft. 7 in.
Width inside	7 ft. 6 in.
Width over side stakes	8 ft. ⅜ in.
Length over striking plates	27 ft. 4¾ in.
Height from rail to center of coupler	2 ft. 2 in.
Distance center to center of trucks	18 ft. 4 in.
Height from rail to top of body	8 ft. 6 in.
Height from rail to top of brake mast	8 ft. 11½ in.

NEW SOUTHERN PACIFIC PASSENGER STATION AT LOS ANGELES.

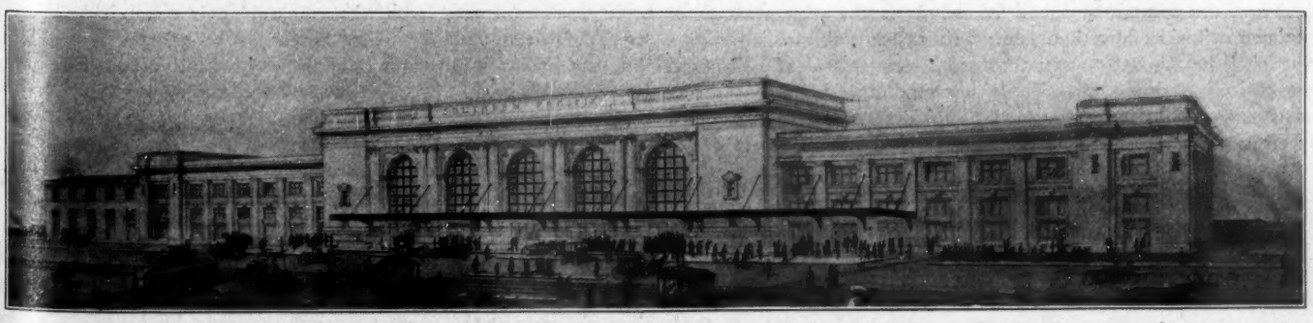
Plans are now being completed for a new passenger station for the Southern Pacific, to be built at Fifth street and Central avenue, Los Angeles. This station and yard are designed to furnish facilities ample for a city of 1,500,000 inhabitants. As shown in the drawings, the classic style of architecture has been adopted. The station building proper and the approaches will cover an area 110 ft. x 600 ft., while the depot and yards will cover 15 acres. The station will be a through station with 14 tracks, each designed to hold 15 passenger cars and 2 engines.



Floor Plan of Proposed New Los Angeles Passenger Station.

Access to the trains will be gained by means of a subway running under the main passenger tracks and connected with each platform by an incline on an easy grade. This subway opens into a public exit concourse 50 ft. x 70 ft. in area. Adjacent to this will be the main concourse and waiting room, 80 ft. x 210 ft. in size, reached by four main entrances. Mezzanine floors provided with lounging chairs, writing tables and current magazines will be located at either end of the main concourse. Other facilities, including information bureau, baggage and check rooms, news stands, etc., will be provided. One important feature will be a dining room, kitchen and lunch counter, to which a space of 70 ft. x 80 ft. will be devoted.

A marquis 220 ft. long and about 30 ft. wide will be located in front of the building for taxicab and automobile passengers. The building will be wainscoted throughout with mosaic marble floors. An indirect lighting system will be installed. The upper floors in the north and south wings, comprising upwards of 25,000 sq. ft., will be occupied by division offices.



Front Elevation of Proposed New Southern Pacific Passenger Station at Los Angeles.

THE STAMFORD COLLISION.

The continued hearings have brought out little of value to add to our report of the Stamford collision printed last week. The air brake inspectors from other roads invited to Connecticut by the New Haven road gave testimony as to the condition of brake apparatus, but for evidence throwing real light on the question whether the collision was in any degree due to faults of the brake it will be necessary to await the full stenographic report. Evidence as to the extent of Doherty's experience as a runner is conflicting, as are his own statements as to where he applied brakes.

General Manager Bardo's statement, abstracted below, was in part denied by F. S. Evans, representative of the enginemen's committee. He said that his committee did not protest against the two-year rule but against the manner in which it was promulgated. He declared that the enginemen of the road were well qualified, all having fired on passenger trains for from two to six years. He said that the men involved in the accidents at Bridgeport and Westport were not inexperienced. Mr. Evans denied that the brotherhood had forced the adoption of any rule detrimental to safe operation.

STATEMENT BY GENERAL MANAGER BARDO.

Speaking at the hearing held by the Interstate Commerce Commission, C. L. Bardo, general manager of the road, explained the existing agreements between the engineers and the company. When Mr. Bardo came to the road on February 15, of this year, he found an agreement in force, made in 1910, which provided that—

> Spare engineers shall be run first in and out so far as it is possible with the requirements of the service and, when engineers are assigned to temporary vacancies, they shall remain on same provided they are competent, until the regular engineer returns. They shall receive rates of the regular engineers while on the road.

This rule had been in effect ten years or more. For many years the New Haven road had fewer men in freight service than passenger, so that the rule was necessarily different from that on most roads. Until recently firemen were promoted quite slowly and were probably better qualified than are the men who have been promoted during the past four years. On December 11, 1912, an order from the general manager directed a modification of the rule, to the effect that spare engineers who had less than two years, experience, or two years' rating as engineers, would not be allowed to run through passenger trains, and that engineers with less than one year's service would not be allowed to run local passenger trains. The enginemen protested against this rule and the protest was one of the first subjects for discussion when Mr. Bardo took charge of the road. He could not find that there had been a single case of accident or other trouble under the old rule of 1910; no case where a young engineer had been the cause of trouble. To this extent the protest of the enginemen against a change was well founded.

Mr. Bardo held long discussions with the general committee of engineers, the chairman of which is a salaried officer. He was dealing, he said, not with the Brotherhood of Locomotive Engineers, but with the road's employees. He held that the old rule ought to be modified and the men went back to discuss it with their constituents. After a month or so another conference was held and the committee submitted a rule to the effect that "no engineer who has less than one year's roster rating as an engineer shall be allowed to run through passenger trains." Though not entirely satisfied, Mr. Bardo accepted this, because of the uncertain situation at that time. "The forces were in many respects disorganized. The train service was bad and things generally were out of gear." He and the vice-president had long discussions with the men at a number of division terminals. In every discussion the men were told that the question of safe operation was more important than anything else. As late as June 1 he had had a long conference with the division superintendents, and on the following day discussed a half day with the engineers' committee in an effort to find, if possible, "what had crept into our engineers." Until within eighteen months the New Haven road has compared favorably with other roads. He believes that 90 per cent., probably 95 per cent., of the men in train and engine service are as good as there will be found on any road. "We had a right to expect that Doherty was a competent man. In all general matters he was. But I am satisfied now that his judgment was unjustifiably bad, and I cannot conceive how an engineer in charge of a train, following, as he did, the first section, and practically on the time of that train, could approach a place where he knew that he was to stop, where he knew that the other train must be ahead of him, would float down in there, and wait until he got within 300 ft. of the distant signal, before he took the necessary steps to stop. I cannot conceive of any man in his right mind doing a thing of that kind. . . . The brotherhoods have not intended to enforce rules which necessarily tend to break down the safety of the service, but they have been edging in, inch by inch. They have been encouraged by the milk and water investigations.

"The general manager of a railroad should have power to say what is right and wrong, and he should have the power to enforce what he says. He cannot have the power if the organization is going to point the pistol at him every time that he attempts to do something which he knows, from his own best judgment, is the right thing to do.

"It is time that the public should understand that this question of railroad safety is one in which they are vitally interested. There is a certain percentage of men in every organization who are going to take advantage of everything they can hear of. . . . You cannot expect, if you are going to criticize a railroad as this railroad has been criticized, but what that criticism is going to reach into the ranks. It is going to result in disloyalty and insubordination.

"When a man sees that the man he is working for is being criticized, he has got an axe to grind, and necessarily he is on the other side of the fence right away. . . . You cannot expect if your division superintendents have not got the power to inflict and enforce discipline and to make it stick that they are going to be able to enforce anything else."

As to whether he was being coerced when the committee refused to accept the two-year rule, Mr. Bardo said: "I would not say that I was being coerced, but under other circumstances I would have insisted upon an enforcement of that which I believe to be right. I was exceedingly anxious to avoid doing anything which might be misconstrued, on the part of the men, as an attempt to take away from them anything which they heretofore had had. I did not want to disturb their peace of mind. I wanted them to get back on their engines and begin to railroad, and to stop worrying about something that was not going to hurt anybody."

Railway Extension in Western Australia.—One of the most important features of the policy of the enterprising government of Western Australia is that of railway extension, by which the new settlers and producers are enabled to get their goods on the markets of the world. At the present time this policy is being pursued. There are now authorized and under construction in Western Australia nine new railways, totaling in length 631 miles. This is in addition to the Trans-Continental Railway, 1,030 miles in length, which the federal government is building to connect the famous mining center of Kalgoorlie with Port Augusta in South Australia, and thereby linking Perth, the chief center of Western Australia, with all the capitals of the eastern states. One of the lines under construction by the state government, that from Wickepin to Merridin, is a part of the new state railway which is to connect with the Transcontinental Railway at Kalgoorlie. Another important line is that from Wengan Hills to Mullewa, which traverses 83 miles of country, much of it admirably suited for wheat growing, it connects the Murchison Railway with the Eastern Goldfields Railway. The other lines under construction are being taken into new agricultural districts with the object of promoting settlement and development.

AMERICAN SOCIETY FOR TESTING MATERIALS.

The American Society for Testing Materials held its sixteenth annual meeting at Atlantic City this week, commencing on Tuesday, the twenty-fourth. At the first session the subject of preservative coatings for structural material was under discussion, and in the report by the committee a very prominent place was given to the annual inspections of the paints that are being tested on the Havre de Grace bridge and the panels at Atlantic City. The report in regard to the former is very elaborate, but inasmuch as the paints are referred to by number only, and there is no key appended to indicate what these numbers mean, it is worthless as a matter of reference and information.

The fourth annual inspection of the panels at Atlantic City is given in great detail both for the inspections of 1912 and 1913. From this it appears that American vermilion (chrome scarlet) is in an almost perfect condition. In fact four out of five of the inspectors so marked it, and the fifth marked it as 9, 10 being the perfect mark. This cut the average down to 9.8. The next highest average is zinc and lead chromate at 8.3; then comes zinc chromate at 8.0, followed by zinc and barium chromate and magnetic black oxide, both of which are at 7.8. Red lead and natural graphite are about the same, being 6.3 and 6.2 respectively, while artificial graphite drops down to 2.6.

The only discussion was brought out by the suggestion to the committee that it publish a key to the paints in the test on the Havre de Grace bridge, so that the data would be available to the members. It was explained that this would be impossible because the paints used were being tested in confidence and that they were known only by chemical composition. To which it was pertinently asked, what was the use of tests if no one was to know what they meant?

A report was made on the corrosion of metals in connection with a series of tests that have been conducted on plates exposed to the gases of the Weehawken tunnel, where the fumes from locomotives are very dense. The report gave, in considerable detail, the rate of corrosion of the different plates on the basis of a calculated rate over the whole of the exposed surface. The report was severely criticized on the basis that it was misleading to assume that the loss of metal was an indication of the value of a metal as a resistant to corrosion. For example, attention was called to the fact that if the corrosion extended uniformly over a plate the destructiveness would be much less than it would be if it occurred as pitting, even though the loss of metal might be greater. It is segregated corrosion that is most to be dreaded. Then it is quite important that the surface condition of the plates be considered in estimating the rate of corrosion. If the plates are exposed as they come from the mill with the scale on, it is evident that the results obtained will be dependent on the character of the scale with which each is covered. Again, to expose unprotected plates to the gases from locomotives is not to follow practice in any particular. No one does such a thing in actual work. Plates of iron or steel are always protected by some coating that is to protect them from rust. But if it is desired to obtain data as to the rust resisting qualities of metals they should always be freed from mill scale, as it will promote rust and it will be found that corrosion is always more rapid, so long as there is any scale on the metal, than it is afterwards.

M. McNaughton, of the Dixon Crucible Company, presented a paper on an "Outline of a Test for Indicating the Relative Priming and Top Coat Values of Different Paints."

The generally accepted conclusion, reached as a result of the experience of the past few years, is that the best protection against the corrosion of iron and steel is not to be secured by the use of any one kind of paint, but by the use of different kinds of paint in combinations. Certain paints are excellent as primers, while others give the best service when used as top coatings. The importance of a simple form to determine the value of paints in these particulars seems evident. Three years ago the writer started a test with this idea in view.

Briefly the scheme is as follows. The upper half of a steel plate (10 in. x 16 in. is a good size) is painted with one of the two paints being tested, while the lower half is painted with the other. When dry, the left half of the plate is painted with the first paint, and the right half with the second paint. This is the simplest form of the test, and gives four combinations of coats. The plate may be divided into thirds and three paints tested, giving nine combinations of two coats each.

It is quite evident that tests made on one plate are much more easily compared than when made on separate plates, with the added advantage of there being no uncertainty as to the character of the metal itself. The discussion drifted away from the text of the paper and centered about the value of red lead of 98 per cent. purity, as compared with one of 85 per cent. and 15 per cent. litharge, with the general opinion that the addition of litharge increases the protective qualities of the coating.

NEW RAILROAD LAW IN MASSACHUSETTS.

The law increasing the powers of the Massachusetts State Board of Railroad Commissioners was noticed in the *Railway Age Gazette* last week, page 1580. The full text of the law, which consists of thirty sections, shows that it includes in the term "common carrier" all railroads, street railways (which are called railways), electric railroads, steamships, express service, car service, telephone lines and telegraph lines. The commission—now to be called the Public Service Commission—has general supervision and regulation of and jurisdiction and control over all these facilities. The law takes effect July 1, and the governor is to appoint two additional members, so as to make a board of commissioners of five. The commissioners choose their own chairman. The salary of the chairman is $8,500, and of the other members $8,000 each. Not more than three commissioners shall be appointed from the same political party. The powers of the State Highway Commission, so far as they relate to telegraph and telephone lines, are transferred to the new commission.

No contested matter upon which a public hearing is required shall be heard or decided by less than three members of the new commission. The commission may appoint a counsel and may employ all necessary engineers, accountants, etc. It may inquire into rates, practices, etc.; may be represented at public hearings before any legislative committee or public board, of any state, with respect to proposed legislation in Massachusetts, and may confer with or appear before boards of other states having power over common carriers. It may provide for an annual audit of all accounts of common carriers, whenever found desirable. It may prescribe a system of accounts and shall make these conform as nearly as may be to the forms of the Interstate Commerce Commission. The commission may determine the fair value of property, for any purpose, and may make a revaluation when deemed necessary.

Sections 15 and 16 regulate the issuance of stocks and bonds, under the supervision of the commission. Authority must be secured from the commission for all issues which run over twelve months. The decision of the commission as to the amount of stock necessary for any given purpose must be based on the price at which such stock is to be issued. Under the old law bonds could be issued only to an amount equal to the par value of stock. The present law permits bonds to the amount of twice the par value of stock. Penalties are provided against directors, treasurers, etc., who vote for any illegal issue.

Section 17 requires all charges for service to be just and reasonable. Charges now lawfully in effect shall be deemed prima facie lawful until the commission otherwise orders; but this provision shall not give to such rates any greater weight,

as evidence of the reasonableness of other rates, than they would otherwise have.

Section 18 prohibits free transportation, with the usual exceptions, among the excepted classes being officers or employees of the legislature.

Section 19. Common carriers may make commodity rates and other special rates. Rates now in force by virtue of existing contracts, are not to be deemed discriminatory unless the commission so determines, but the commission shall not be prevented from taking action because of a contract now in force. Common carriers may issue mileage, school and other special tickets, unless the commission shall forbid. All season tickets, before issuance, shall be subject to the approval of the commission as to form and conditions.

Section 20 has provisions for publication of tariffs, etc., similar to the provisions of the Interstate Commerce Law. Section 21 allows the commission to suspend for six months any proposed increase in rates. In case of suspension, the burden of proof, to show that an increase is necessary, rests on the carrier. In case of a proposed decrease in a rate the commission may fix a minimum rate, if the one proposed is held to be insufficient to yield reasonable compensation.

Section 22. Whenever the commission, after hearing, finds that rates are unjust or are insufficient to yield reasonable compensation, it shall determine and prescribe reasonable rates. The commission may suspend the long and short haul provision of the law.

Section 23 gives powers in regard to practices, equipment, service, etc., similar to those relating to rates. The commission may, after hearing, require any standard gage railroad to be equipped for electric power, but shall consider the relative importance and necessity of the proposed changes, and other changes which may be needed; all in regard to the financial ability of the carrier and its duties to the public.

Section 24 gives power to regulate the number of men in the crew of a train.

Section 25 authorizes the establishment of through routes and through rates. The commission may grant locations for connecting tracks. Each road shall have full authority over trains on its own tracks. The commission may order connecting tracks laid to private side tracks if the probable amount of business is deemed sufficient.

The Supreme Judicial Court has jurisdiction in equity to review, annul, modify or amend the orders of the commission, to the extent only of the unlawfulness of such orders. This court shall have jurisdiction to enforce all valid orders of the commission and all provisions of the Act.

THE SERVICE RECORDER.

The "service recorder" is a time-piece which carries on its face a paper dial for making a continuous record, like a pencil mark, throughout a period of 24 hours, and connected with which is a large pendulum that swings only when the clock is disturbed. The device is used on moving vehicles, such as automobiles or locomotives, for making a record, independent of the person in charge of the car or engine, of the time that it has been in motion; in other words, the time that the engine has been at work. When the engine is absolutely still a continuous thin line is recorded, but when it is in motion the pencil moves transversely, as related to the thin line, and the difference between time in motion and time at rest is thus clearly indicated to the inspector. Automobile trucks used largely on city streets for carrying merchandise, and switching locomotives used in extensive industrial plants, as well as in railroad yards, have been equipped with large numbers of these recorders, and the users express marked satisfaction with the results. A truck driver or a switching foreman who wastes time while out of sight of headquarters finds, next morning, when the clerk at headquarters takes out the day's record sheet and puts in a new blank for the succeeding day, that the amount of time that has been lost is revealed.

The recorder is contained in a cylindrical iron box about 8 in. in diameter, which can be fastened to the front wall of the locomotive cab, or to any vertical surface of the vehicle which is transverse to the road over which it travels. There is no connection from the clockwork to the running gear or to anything outside the case. When locked up, every part of the apparatus is concealed. Closing the door (the clock being wound up) starts the record, and at the same time makes a small cut in the edge of the record paper. Opening the door cuts the paper again, thus making a record of the times of opening and closing, which cannot be tampered with.

A record sheet is about 6 in. in diameter. A sample record, reduced somewhat less than one-half in diameter, is reproduced in the accompanying engraving. This record was made on a factory truck, and the periods that the vehicle was in motion are indicated by the heavy black spots. The longest one is that from 10:40 a. m. to 11:15 a. m. Work was begun at 6:35 a. m., and terminated at 4:47 p. m. The longest time not in motion was from 11:15 to 12:58. The thin line, showing that

A Sample Record.

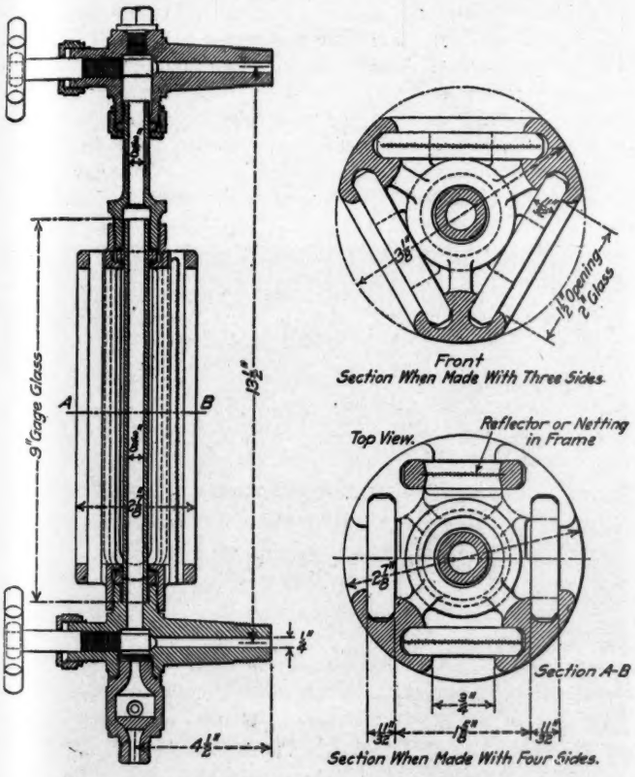
the truck was at rest, extends completely around the circle, except for the black sections, but is not distinctly shown in the engraving. If the driver had taken the truck out for a joy ride at midnight black marks at the bottom of the circle would have revealed the fact.

The makers of the service recorder give the following names of owners of locomotives who use it: American Car & Foundry Company; American Steel Foundries; Ann Arbor Railroad; Arizona & New Mexico Railway; Baltimore & Ohio; Buffalo Creek; Chicago, Burlington & Quincy; Chicago Great Western; Chicago Junction; Chicago & North Western; Chicago Short Line; Chicago & Western Indiana; Colorado & Southern; Columbia & Puget Sound; Delray Connecting; Duluth, Missabe & Northern; Grand Rapids & Indiana; Great Northern; Ivorydale & Millcreek Valley; Kentucky & Indiana Terminal; Lake Shore & Michigan Southern; Lake Superior & Ishpeming; Lake Superior Terminal & Transfer; Manufacturers' Railway (St. Louis); Michigan Central; Newburgh & South Shore; New York Central & Hudson River; Pacific Portland Cement Company; Pennsylvania Railroad; Philadelphia, Baltimore & Washington. Many of these roads have given second orders for the service recorder.

The factory of the Service Recorder Company is at Cleveland, Ohio, and it has offices in Boston, New York, Philadelphia and Chicago.

DELCO SAFETY WATER GLASS SHIELD.

The Interstate Commerce Commission requires very close attention to be given to the protection of water glass gages in order to prevent injury to the occupants of locomotive cabs in case of the bursting of the gage glass. The Delco safety water gage shield, which is shown in the illustration, was devised to prevent the flying of broken glass and also the scalding of the hands of persons engaged in turning off the gage cocks after a water glass bursts. It consists of a one-piece body fitted with glands to receive the regular tubular glass, and with slots for the heavy glass protecting plates. The glass shield is omitted at the rear and a perforated plate or netting is inserted in its place to permit of the escape of the water and steam when a gage glass bursts; this prevents the steam and water from blowing down and scalding the hands of any one engaged in turning off the gage cocks. The shield is made in a standard length which permits the use of tubular glasses with fused ends, thus overcoming breakages due to rough edges which frequently start progressive fractures. The one-piece construction



Delco Safety Water Glass Shield.

also permits the water glass to be perfectly alined and overcomes the difficulty of the glass breaking due to a twisting action on account of one of the fittings being out of line. Tubular extensions are provided so that the shield may be assembled complete before application to the boiler, and may be applied between boiler fittings placed any distance apart. As the water glass is contained in the shield itself, it is impossible for any one in renewing a glass to forget the application of the shield.

A straight passage is provided entirely through the water glass and boiler fittings so that a wire may be passed through to clean out obstructions, as is required by law.

The Delco shield is the invention of H. C. Manchester, superintendent of motive power and equipment, Delaware, Lackawanna & Western, and over 750 of them are in use on that road. It is manufactured by the American Safety Lamp & Mine Supply Company, Scranton, Pa.

IMPROVED FLEXIBLE STEEL AIR BRAKE HOSE.

In addition to the troubles with the standard air brake hose, due to bursting, blowing off of fittings, chafing, etc., difficulty is encountered on some roads by uncoupling or pulling off of the fittings on the long passenger equipment when taking short cross-overs. Armored hose, when applied to this equipment, did not uncouple, which increased the already high strain on the hose beyond the strength of the armor clamp on the nipple end, and this was remedied by eliminating the sharp corner at the base of the finger which extends forward to engage with the fittings. The design of clamp shown in the illustration was adopted after subjecting two lengths of hose, fitted with several types of clamps, to a reciprocating motion, approximating the hardest conditions to which it could be subjected in service. The hose, when extended the maximum distance, was on the point of uncoupling, and if the gaskets were not changed very frequently it was impossible to keep them connected. The new clamp withstood 51,960 alternations as compared with 1,400 with the old type. The old style failed in a manner exactly similar to those in service, while the new type corrected this trouble. The test of the new design showed that although the strain developed was so great that one of the fingers of the clamp slightly cracked, where it bends down to engage with the collar on the nipple, yet, even if this condition occurred in service, no danger would result as the other clamp, being intact, would prevent the danger of failure due to blowing out of fittings.

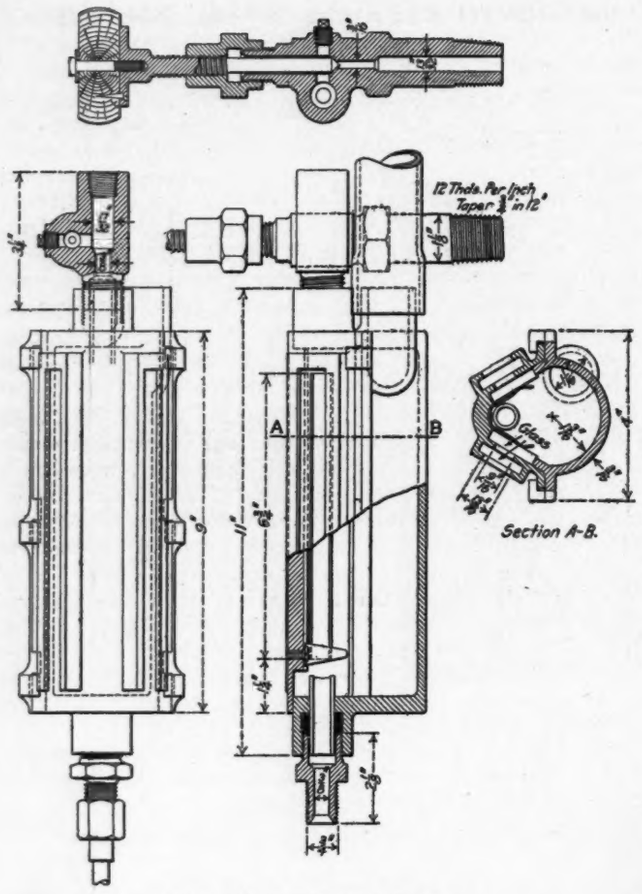
The armored air brake hose is intended not only to overcome chafing and kinking, but also to eliminate the source of other air brake hose troubles. The stretching test in the M. C. B. specifications explains this very thoroughly, as the quality of the

Armored Air Brake Hose with Improved Clamp.

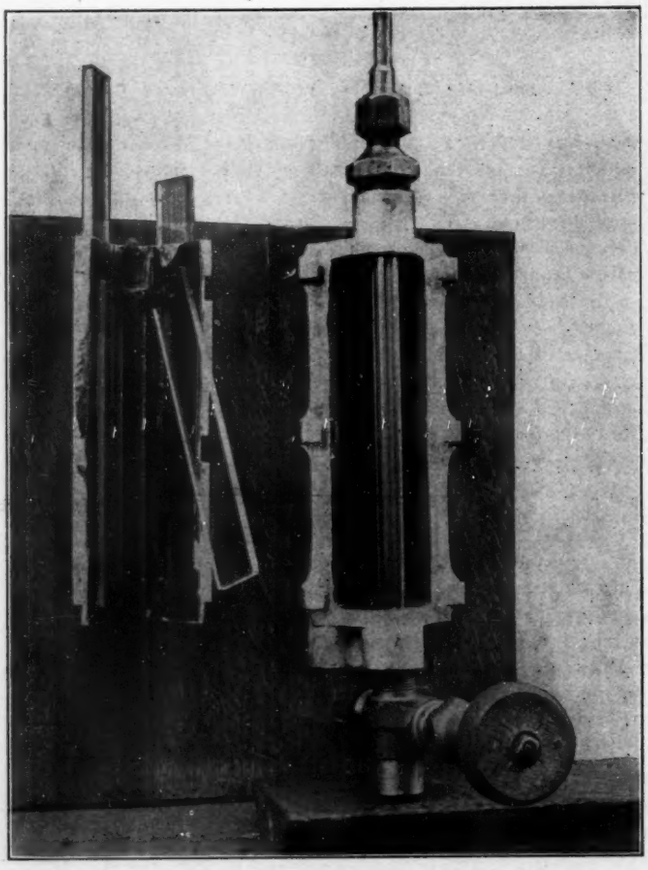
rubber is governed by its ability to resist deterioration when under strain. The armor offers very high resistance to internal pressures, thereby relieving the duck or canvas of the hose; consequently it is claimed there is no deterioration of the rubber due to stretching. Further, porosity enters into the question, as the tendency of internal pressure is not to develop defects, as in the case of unarmored hose, but to compress the wall of the rubber hose against the armor with exactly the opposite effect. Chafing of the inner tube by the nipple is also greatly reduced, and recent improvements in the flexibility of the armor showed, in the tests referred to, that there was no evidence of trouble from that source. This hose is manufactured by the Sprague Electric Works, 527 West Thirty-fourth street, New York.

BABCOCK SAFETY WATER GAGE.

In the designing of safety water gages it is most important that the passage provided for the escape of the steam and water after a water glass bursts be amply large, as otherwise pressure will accumulate and cause the breakage of the protective glass in the shield, and the steam will pass directly into the cab. In the gage which has been adopted as standard on the Pittsburgh & Lake Erie a pipe, shown in the illustrations, has been provided to carry off the broken glass, as well as the steam and water during the interval while the gage cocks are being closed. This safety gage is provided with two sets of heavy glass plates, an outer and an inner, the latter being held in place by steel springs.



Babcock Safety Water Gage.



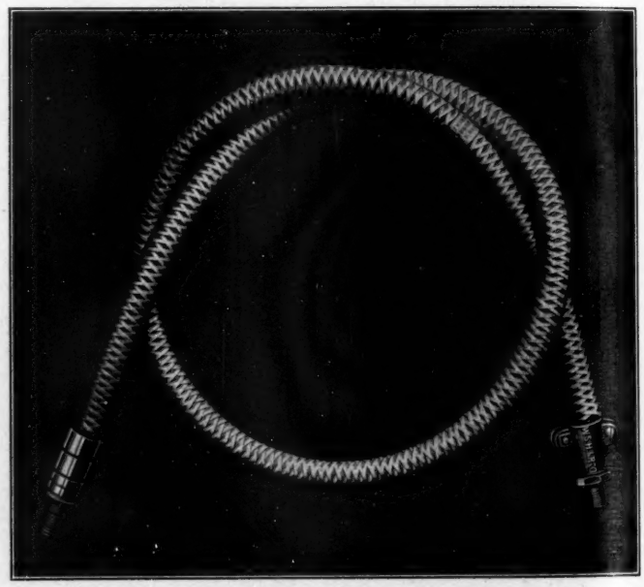
Babcock Safety Water Gage with Glass Removed.

The purpose of the inner plate is to absorb the shock of the explosion and in case the inner plates should break there is still left the outer set to prevent the escape of the steam and broken glass into the cab. These protecting plates are set at such an angle that both the engineman and the fireman can get a plain view of the inner tubular glass. It is further claimed that the breakage of the inner plates is very unlikely, owing to their location permitting only a glancing blow from particles of broken glass.

This safety gage is the invention of F. H. Babcock, assistant boiler shop foreman, Pittsburgh & Lake Erie, McKees Rocks, Pa., and is manufactured by the American Car & Ship Hardware Manufacturing Company, New Castle, Pa.

ARMORED SQUIRT HOSE.

In our issue of May 2, 1913, page 976, attention was directed to the fact that the report of the chief inspector of locomotive boilers for the year ending June 30, 1912, showed that 243 accidents, or more than 28 per cent. of the total number, were due to defective squirt hose and connections. That the seriousness of this has not been more fully recognized before this is doubtless because none of these accidents prove fatal, and usually the men recover within a very short time. They are caused by the bursting of the hose or by the hose being forced off its connection, thus allowing the steaming hot water to scald the firemen, and in some instances the enginemen as well. In many cases a cheap grade of garden hose is used, which soon fails under the



Armored Squirt Hose.

severe service to which it is subjected and in other cases the hose is very insecurely fastened to its connection.

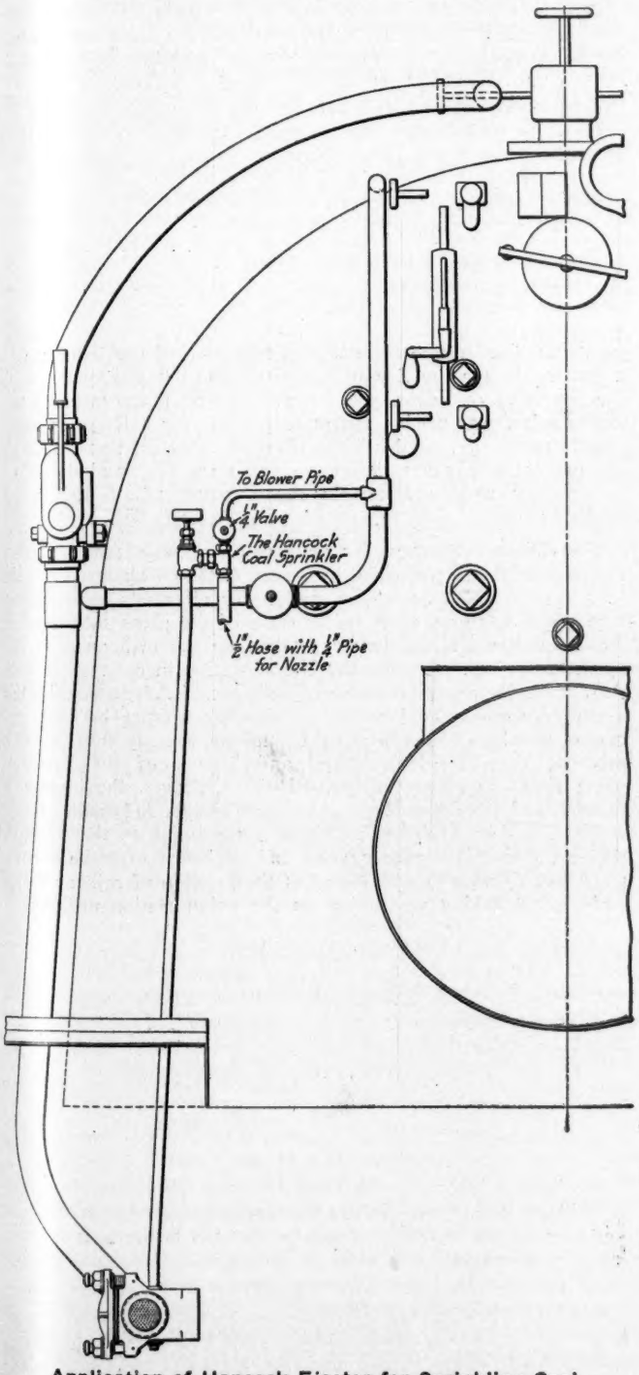
Various schemes are being devised to overcome this defect. These include the attempt to use cold water from the tender tank, or to use an ejector. Another means is to use a stronger hose, which is proof against bursting, and with fastenings such that it cannot be forced from its connection to the boiler. The Woven Steel Hose & Rubber Company of Trenton, N. J., has for a number of years been manufacturing a flexible armored hose. It was first adapted for use as a squirt hose about three years ago, and is reported to have given good results and to have an exceptionally long life. Five thousand locomotives are said to be equipped with it, on such roads as the Pennsylvania, Baltimore & Ohio, New York, New Haven & Hartford and the Boston & Maine.

The hose is made with a steam tube instead of a water tube,

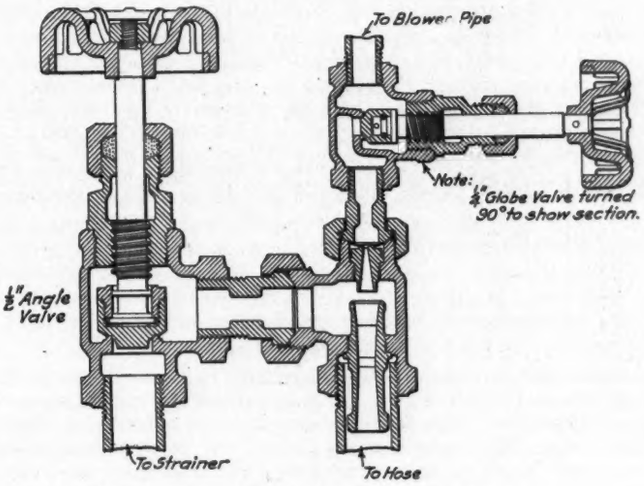
and will therefore last much longer under the action of the hot water. It is covered with a strong flexible covering of steel, protecting it against exterior wear and the chafing caused by the constant vibration of the locomotive. Special fastenings, which are clearly shown in the illustration, have been devised to prevent it from blowing off the nipple. Obviously the first cost will be much higher than for that of the ordinary type, but it is said to last so much longer that its cost per unit of time is considerably less.

EJECTOR FOR COAL SPRINKLING.

It is the general custom in wetting down the coal on locomotives to take the water supply from the delivery pipe of one of the injectors through a squirt hose and the necessary connections. The water in the injector delivery pipe is at a temperature and pressure sufficiently high to cause serious accidents in cases where the hose bursts. The device shown in the two illustrations, for the sprinkling of locomotive coal, is entirely independent of the injector, taking its steam supply from a pipe branching off from the blower pipe. The principle is the same as that of a lifting injector; steam is admitted through a ¼ in. globe valve and raises the water through the suction pipe which is connected to the main delivery pipe from the tender. A ½ in. valve is placed in this suction pipe to prevent waste of water in case the apparatus is located below the highest water level in the tender, and also to prevent air being drawn into the suction of the injector should there be an obstruction in the suction hose. The quantity of steam used is very small, and although there is an ample supply of water under sufficient pressure to sprinkle the coal, the temperature is so low that no serious accident can occur and there is an absence of the steam which is very commonly seen in the cab of a locomotive when the squirt hose is being used.



Application of Hancock Ejector for Sprinkling Coal.



Section Through Ejector for Coal Sprinkling.

This device was developed and is being manufactured by the Hancock Inspirator Company, Boston, Mass., and is being applied to 150 Baltimore & Ohio locomotives.

AUSTRALIAN RAILWAY CONSTRUCTION PLANS.—A commission will be appointed to advise the government on railway matters affecting the Northern Territory in Victoria, particularly as regards the adequacy of the present line, the necessity for further developmental work, and also the prospect of linking up the territory railways with the system of the other states. The committee will consult and ascertain precisely the railway construction program to be carried out in Queensland, Western Australia and South Australia, all of which states adjoin the Northern Territory. The final recommendations will include a large amount of construction work and will necessitate the expenditure of large sums of money.

TRANSPORTATION IN MADRAS.—It is suggested that the needs of better transportation facilities in the Madras presidency might be met, in the absence of railway extensions, by putting industrial motors on the roads. A Madras correspondent of an Indian contemporary remarks that the leap from railways to motor traffic is easy and that the increased utilization of road traction would be justifiable, if only from the point of view of not putting all your traffic eggs in one basket. The demand for more ample traveling and freight car facilities forms one of the principal themes at the meetings of the District Boards It is constantly coming under the consideration of trades people and of their Chambers of Commerce. The need is universal and insistent.

General News.

Representative Willis of Ohio has introduced in Congress a bill to give the Interstate Commerce Commission certain authority over intrastate railroad rates.

Representative Levy of New York has introduced in Congress a bill to allow competing railroads to make traffic contracts, subject to the supervision of the Interstate Commerce Commission.

Maurice Prevost, a French aviator, on June 19, flew 217 miles at the rate of 117 miles an hour. This was a straightaway flight. The previous record made by Prevost was made on a circular course.

Officers of the conductors' and the brakemen's brotherhoods have distributed blank ballots for the proposed vote in regard to authorizing the officers to declare a strike if they deem such action necessary.

The United States Civil Service Commission announces examinations July 28 for candidates for the position of examiner of accounts, under the Interstate Commerce Commission; salary from $1,860 to $3,000.

The Missouri, Kansas & Texas has established a refrigeration department, in charge of G. D. Shafer, under the supervision of the superintendent of transportation, to encourage the use of refrigerator cars for fruit and vegetable shipments.

William H. Schroeder, engineman of Delaware, Lackawanna & Western train No. 11, and responsible for the collision at Corning, N. Y., July 4, 1912, was last week tried on a charge of manslaughter and was acquitted. The jury deliberated on the case two hours and 38 minutes. The trial lasted nine days.

Mr. Stevens of Minnesota has introduced in Congress a bill to amend the 28-hour law, relative to feeding and watering animals in transit, so as to exempt switching railroads over which live stock is carried for a distance of less than ten miles. The bill was referred to the House committee on interstate and foreign commerce.

The shops of the Denver & Rio Grande at Salt Lake City were mostly destroyed by fire on the night of June 18; estimated loss $200,000. The paint shop, blacksmith shop, planing mill, engine room and wheel shop were destroyed, together with 25 freight cars, 6 passenger cars and 3 cabooses. Officers of the road announce that the shops will be replaced by much larger ones, but the exact location has not yet been announced.

A. W. Smallen, chairman of the general safety committee of the Chicago, Milwaukee & St. Paul, has addressed a petition to the municipal court judges of Chicago, asking them to impose penalties on all trespassers brought before the courts. With the petition was a statement showing the number of persons killed while trespassing on railway tracks during the past 20 years, and a comparison of the number of trespassers killed and injured, and passengers and employees killed and injured during the year 1912.

The Illinois legislature, in its closing session, last week, passed a bill providing for a state public utilities commission with broad powers. It is being strongly opposed by the city of Chicago and by civic organizations because it does not provide "home rule" for Chicago, and the governor is being urged to veto it. He has agreed to give a hearing to the opponents of the bill. The legislature adjourned without passing the anti-pass law, and without taking action on a large number of railway bills, including the full crew bill and an electric headlight bill.

The Monthly Bulletin of the traffic department of the Chicago & North Western has recently begun a series of articles on station efficiency, in which questions pertaining to details of station organization and system will be discussed for the purpose of giving encouragement to agents by pointing out the importance of their work, and of assisting them by describing methods of obtaining better results. The first article is preliminary and calls attention to the need of system to prevent lost motion and to obtain better results with less work.

The new double-track railway and highway bridge to be built across the Mississippi river at Memphis by the Chicago, Rock Island & Pacific, Missouri Pacific, and St. Louis Southwestern, is to be called the "J. T. Harahan Bridge," in honor of the late president of the Illinois Central, who was killed in a collision at Kinmundy, Ill., in January, 1912, while on his way to Memphis on work in connection with the bridge. Mr. Harahan at that time was president of the Arkansas & Memphis Railway Bridge & Terminal Company, the corporation organized to build the bridge.

A petition for a receiver for the Southern New England Railroad has been filed in the Supreme Court of Massachusetts on behalf of John Marsch, one of the contractors for the proposed line between Providence and Palmer. The ground for the petition was the alleged neglect of the company to pay a claim of Marsch. Marsch says that he has already been paid about $500,000; that he is entitled to $1,510,000 damages for the breaking of the contract and that the officers of the defendant company and the Grand Trunk have admitted that he is entitled to receive $240,000.

Chapter 462 of the Laws of New York, passed this year, makes 10 hours' labor within 12 consecutive hours a legal day's labor in the operation of railroads and street railroads, except where the mileage system of [paying men engaged in] running trains is in operation. This law applies to all roads 30 miles long or longer. It forbids the employment of trainmen for more than 16 consecutive hours; and whenever a man has been on duty for 16 hours he must have at least 10 consecutive hours off duty. Among the exceptions allowed are cases where a man is delayed by "unexpected delays of connecting trains."

The bill, prepared by the committee of the Civic Federation, to amend the Erdman law relative to arbitration and conciliation, was introduced in Congress last week, and on Monday of this week was favorably reported by Senator Newlands, chairman of the Interstate Commerce Committee of the Senate. At a hearing before the Senate committee the bill was opposed by the Secretary of Labor, who argued that no amendment to the Erdman law was needed except to provide for a larger number of arbitrators. The bill has the effect of repealing that clause of the present law which designates the former Commissioner of Labor, now a subordinate in the Department of Labor, as mediator.

The Chicago city council committee on railway terminals, at a meeting on June 23, decided by a vote of 9 to 4 against the idea of a central union passenger station for all roads entering the city, which has been proposed in some of the plans submitted to the committee. No action was taken on the ordinances asked by the roads now entering the Union station in connection with their plans for a station between Jackson and Adams streets, but a conference was held in Mayor Harrison's office between the mayor, members of the terminal committee, the city subway commission, Vice-Presidents Wood and Turner of the Pennsylvania lines, President Miller, of the Chicago, Burlington & Quincy, and President Earling, of the Chicago, Milwaukee & St. Paul. The City Club has presented a resolution to the committee asking that it engage experts and engineers to make a complete investigation of the subject of the location of railway terminals before taking any action on the union station ordinances.

A Correction.

In the article on Mechanical Stokers from Operating Standpoint in the issue of June 13, 1913, the mileage on the Chesapeake & Ohio between Hinton and Clifton Forge should have been 80 instead of 180; and the 6,000 ton rating given between Handley and Hinton should have been 3,750, the former applying between Handley and Russell.

Another View of the Case.

We hate to look at it that way, but since Professor Taft took to bobbing in and out of New Haven so frequently the railroad has been all out of order. But this does not in the least exonerate the passengers. Reckless to the point of criminality, they have neglected the most elementary precautions. Perfect jumping daredevils, those passengers! Watch them! See them rush to that ominous little grated window and buy tickets of an inmate whose record they never stop to pry into! See them fling themselves aboard their trains without counting the wheels or so much as investigating the engine, whereas we have beheld

engines brazenly inscribed "1812," "1776," and even "1620"! And just consider their indifference to the engineer! Do they ask his age, and if his mother knows he is an engineer? Do they rub his back? Not they! Why, sakes alive, you might think they were off for a trip in a mere aeroplane!—*New York Tribune.*

Railway Boom in China.

A great wave of enthusiasm for the construction of new railway lines has of late been spreading through the provinces of China. The issue alone affords significant evidence of the awakening of the people to the need of new lines of communication. There is in all quarters a spirit of inquiry abroad. This is in marked contrast with the attitude of opposition adopted on all sides but a year ago to projects having for their object the opening of the country by railways. The revolution would seem to have wrought the change. It may or it may not have done so. What is certain, though, is that the prime mover of the agitation which led to the revolution has done more than any other person in the country to dispel the popular prejudices which militated against progress in railway development. Dr. Sun Yat-sen, by his campaign in the various sections of the country which he has visited, has opened the eyes of the people to the fact that in easy communication is the secret of strength and independence.

Safety of Passengers on the Pennsylvania.

One road—the Pennsylvania—has the courage to publish its passenger-accident record without waiting until it can show non-fatal statistics for a whole year. In 1912, 27 passengers were killed; but 85 per cent. of them were due to other than train accidents; falling off trains, walking in front of trains at stations, and getting on and off moving trains. A total of 837,121 trains were run for an aggregate distance of 40,000,000 miles, carrying all told 100,000,000 people, and two trains suffered wrecks causing loss of life. Of the passengers injured in 1912, 321 were hurt getting on and off trains. Two hundred and fifty-five persons classed as "passengers" were hurt in falling while on railroad property other than trains. In five years the number of passengers carried was nearly five hundred millions, and sixteen of them lost their lives in accidents to trains, nine having been killed in one accident. In five years, only five trains out of over 4,000,000 operated suffered wrecks which caused the death of any of the passengers carried on them. The figures are:

Year.	Passengers carried.	Train accidents in which passengers were killed.	Passengers killed in train accidents.
1908.....	88,328,604	0	0
1909.....	92,391,356	1	1
1910.....	100,844,477	0	0
1911.....	97,978,839	2	11
1912.....	101,755,061	2	4
	481,298,337	5	16

The company's statement says: "The management regards every accident of any kind as one too many. The number of accidents must be cut down. To that end efforts are being directed more definitely and systematically than ever before."

A Bold Statistician.

It is estimated by a Chicago alderman, Mr. Long, that smoke costs the city $18,461,106 annually, and this does not include cigarettes and other forms of the tobacco evil. The railroads are responsible for $7,938,276 of it, and factories for a great part of the rest. The average loss to each family is put at $15.48, which is greater than the annual personal property tax. To do about $21,000 damage a day the 1636 locomotives burn 5,601 tons of coal, which makes the damage from burning a ton of coal come to $3.75 or the value of the coal itself. Alderman Long is a bold statistician, but his figures suggest that it might be cheaper to push the freight trains by hand, provided the workers were not allowed to smoke short black pipes.—*Springfield Republican.*

137,804,768 Eggs B. O. at N. Y.; Not O. R.

This is the record for the year 1909, according to a pamphlet issued by the Bureau of Chemistry, Department of Agriculture. In an effort to reduce the enormous breakage of eggs in transit —to prevent the accidental scramble that means such a large loss to producers and consumers—the department is conducting extensive experiments to determine the safest manner of packing. The waste noted, over 11½ million dozen, is 9 per cent. of a total consumption in 1909 of 127,689,600 dozen eggs. In other words, this percentage of all eggs received in New York were cracked, and of these a large number were unfit for food use. The egg supply of large cities, and particularly New York, has to come from a long distance. The Middle Atlantic States in 1909 sold only about 110,000,000 dozen eggs, or not enough to supply New York alone, if every egg had been sent to that city. For the eastern coast cities, the distant corn districts are practically the sole source of supply, because the little gray hen does not have to scratch so hard for a living there as she does where grain is scarce. The Bureau of Chemistry regards the investigation of the methods of preventing egg breakage as particularly important because the many millions of dozens of eggs now broken in shipment naturally tend to keep the price of this valuable food higher than if there were no breakage, or if the breakage were materially reduced. The bureau, through the Food Research Laboratory, is now engaged in shipping eggs handled in different ways on long journeys to different points in the United States, and is carefully noting their condition on receipt at their destination. The situation is growing acute, for the railroads are claiming that their damage losses are such as to make the carrying of eggs unprofitable. Shippers and consignees have large sums of money tied up in claims and litigation with the roads.

New York Law of Signalmen's Work Days.

The new law of the state of New York requiring railroads to grant two days of 24 hours each off in every calendar month for rest, with regular compensation, applies to signalmen, tower men and gatemen; and to telegraph operators and telephone operators receiving or sending train orders. The same law says that train despatchers and train order operators must not work more than eight hours in a day of 24 hours; but extraordinary emergencies caused by accident, fire, flood, or danger to life or property may be treated as exceptions. For each hour worked beyond eight hours, in emergencies, employees must be paid at the rate of at least one-eighth their daily compensation. The provision for two days off in each month does not apply to operators working less than eight hours a day. Violation of the law is subject to a penalty of $100 and the fine, when collected, is to be paid one-half to the informer and the balance to the Free School Fund of the State. The law does not apply to any part of a railroad where the number of regular passenger trains each day, daily, is not more than eight, though if there are usually 20 freight trains each way daily, the law applies, even with less than eight passenger trains.

Rest Days in New York.

Chapter 740 of the Laws of New York for the present year establishes the rule of one day of rest in seven for the employees of all factories and mercantile establishments. Every such employee must have at least twenty-four consecutive hours of rest in every seven consecutive days; but there are exceptions in regard to bakeries, and persons caring for live animals are also excepted, as are superintendents, foremen and men who maintain fires or make necessary repairs to boilers or machinery. The proprietor of a shop must post in a conspicuous place the names of men who are required or allowed to work on Sunday, with the rest-day of such employee designated. The State Industrial Board, when necessary to preserve property, life or health, may make temporary exceptions to the law. This law goes into effect October 1 next.

Good Use of Nicotine.

The Long Island Railroad has had a strenuous fight against caterpillars or web-worms, millions of which have been infesting its tracks for some weeks, and reports a final victory; but what has become of the unfortunate farmers Mr. Peters does not tell us.

Early in June "tent caterpillars," as they are called, were reported "traveling westward a foot deep." President Peters instructed the road's agricultural department to go over the Montauk division and endeavor to exterminate the worms, which were causing many delays to trains. At one place for a mile and a quarter, the track, running through thickly wooded hills, was

covered with a sticky mass of caterpillars that had been crushed by trains. The first thing done was to destroy the worms already on the rails. This was accomplished by means of hand spray pumps containing "sulfocide" and a concentrated solution of nicotine, applied by men traveling slowly along the track on a hand-car. The army of caterpillars on the rails and ties was exterminated by these chemical solutions and the mass of crushed and cooked insects was softened so that the slippery coating that had caused so many delays to trains could be removed with a hoe.

To check further inroads on the right-of-way, from other armies of caterpillars leaving woods which they had defoliated completely, a stream of heavy crude oil was poured along the outer edge of the ties, and later ditches were dug on both sides of the track and filled with oil, to prevent the caterpillars from reaching the rails.

A Distant Hope.

William B. Wilson, Secretary of Labor, in an address at the annual memorial service of the railroad brotherhoods in Philadelphia, last Sunday, said that he hoped for a universal eight-hour law for railroad men and a system whereby trainmen may spend their off time at their homes.

"There is no economic reason why a railroad labor schedule should call for sixteen hours as the maximum of a day's labor, and the time will come when the day will be shortened. Such a change is essential in order that accidents may be prevented. I don't expect this in the near future, but I say it will come. I also hope to see the time when railroad men, instead of spending every other night or so away from home, will be enabled to spend all their off hours at home with their families."

President Rea on the Situation.

I can take no gloomy view of this great country and its possibilities, notwithstanding the present unfavorable outlook. I have unbounded confidence in the business men of this country that nothing approaching confiscation or unfair dealing to lower the standards of service will ultimately be permitted, provided the railroads themselves will put their cases in the hands of the business public and clearly emphasize their needs; it is for that purpose that we are in conference with you.

So far as the Pennsylvania Railroad itself is concerned, and stripping it of all obligations connected with the lines in its system which act as feeders, it perhaps cannot be said that at present it absolutely needs an increase in transportation rates for the ordinary maintenance of its property, the payment of its present fixed charges on the outstanding capital, or to maintain the present rate of dividend.

This is the result of the conservative management I have already alluded to, which has conserved its capital account and applied all above a fair dividend to the betterment of the property; but the company itself cannot ignore the other companies in its system upon which it relies to be fed with traffic, and upon their investment and its own, as above stated, it received the low return of 4.83 per cent. in 1912.

One railroad, as you know, cannot be favored in this wise and the others excluded. If the position of the Pennsylvania system, as above stated, leaves it in need of the moderate advance in freight rates now requested, it is clear that such an advance is urgently needed on sound business reasons, by all other railroad companies, not to pay for inefficient management or undue capitalization of the past, but after exercising the best ability and foresight that can be obtained in the administration of the property, the railroads are not receiving just compensation under present rates.

Unless this reasonable treatment is accorded to the railroad companies and a fair return can be earned upon the money invested in railroad facilities, the railroads will come to a standstill because capital cannot be exacted from the public unless it is suitably rewarded. Therefore, is it not time for business men of your experience to take a hand and see that only fair-minded and impartial men are sent to legislatures and regulative bodies who will co-operate with these governmental agencies of transportation—for that is what they have become in fact, although privately owned—to the end that continued good service and facilities may be assured, necessary improvements made, protection secured for the capital already invested, and the new capital raised on a basis that shall yield a fair return to the owners of the properties?

And, furthermore, can you not also do something to guard against the unwise acts of organized labor when directed to securing what might be termed coercive and class legislation as illustrated in the extra crew laws? Railroads, like other corporations, are now generally prohibited from contributing to political parties, and rightfully, but without apologizing for what existed in the past, I do believe that such contributions were made oftener for the purpose of preventing unjust legislation than to influence legislation favorable to the railroad companies.

What, however, is the difference in morals between railroads currying favor with political parties through contributions to the party purse, and so-called labor committees sitting in almost every capital and in many cases, as we are informed, promising votes in return for such unnecessary legislation as the extra crew laws? I say there is no difference, and such action should also be prohibited, and you business men can do much in this direction, if you believe the railroad position just and will make your power effective.

Such action will also be in the most enlightened interest of the employees, and encourage those who intrust their capital to us. We must all work and advance together on a mutually fair basis if we desire our country to progress.—*From an address before the Shippers of Boston, June* 12, 1913.

Meeting of Valuation Engineers.

The Valuation Board of the Interstate Commerce Commission held its first meeting at Washington, June 30, and conferred with a number of railroad officers. The object of the conference was to consider arrangements for co-operation between the commission and the carriers in the preparation of maps, profiles and other necessary data. T. W. Hulme, general secretary of the railroads' valuation committee, headed the railroad delegation, which consisted of fourteen engineers and five attorneys.

O. P. Gothlin, of Ohio, president of the National Association of Railway Commissioners, has appointed a committee, with representation from several different states, to consider the matter of valuations and to keep in touch with the Federal Board at Washington; and one of this committee, W. H. Stutsman, of North Dakota, was present at the Washington conference. The chairman of the committee is Commissioner Martin, of Kansas. The committee will hold a meeting in Chicago on Saturday of this week.

In connection with this movement a number of the western state commissions have submitted their views to President Wilson and to Congress, demanding that "the people" shall be represented by special counsel and by experts in the valuation of physical properties.

The New Haven's Accident Record.

The New York, New Haven & Hartford, because of what it characterizes as the many erroneous statements and false reports placed before the public in the Brandeis campaign, which has been almost continuous now for six years, and which finds its opportunity in accidents as well as labor and political agitation, has issued an abstract of its record of passenger train accidents for ten years from June 30, 1903, to June 15, 1913. In that time the company ran 5,078,750 trains a distance aggregating 158,531,541 miles, and in these trains carried 755,678,338 passengers paying fare. In these ten years there were 6 accidents to trains in which persons traveling on them were killed, and the number of passengers killed was 29.

In six of these ten years not a single passenger was killed in a train accident. To correct the many erroneous statements that have appeared in print, the figures by years are here given:

Years.	Passengers carried.	Train accidents in which passengers were killed.	Passengers killed in train accidents.
1903 (Last six months)	34,090,448	0	0
1904	63,234,687	0	0
1905	66,507,138	0	0
1906	72,521,069	0	0
1907	75,453,778	0	0
1908	74,382,023	1	1
1909	79,849,297	0	0
1910	83,860,031	0	0
1911	83,768,348	2	12
1912	85,350,409	2	10
1913 (to June 15)	36,661,110	1	6
Total	755,678,338	6	29

The statement continues: "In the five accidents preceding 1913 no coroner's verdict or investigation by state or national authorities found any defect in the construction of roadbed, the condition of motive power, or equipment, or in condition or operation of signals. It is because of this record for safety and because of the superior roadbed and equipment that the public is shocked over every accident, of any character, from any cause, that takes place on this road."

Work for the Accountants.

The decision of the Supreme Court in the Arkansas rate cases was not issued in complete form until June 24; and it then appeared that, in accordance with the Court's mandate, the adjudication of the cases will call for the presentation by the carriers of actual book accounts of receipts and expenditures in intrastate business. Nothing less will be accepted as a basis for annulling state rates as confiscatory.

Justice Hughes briefly announced the decision of the court that the freight and two-cent passenger rates in that state were not confiscatory on the court's last decision day, June 16, and has been engaged in writing the opinion in the cases since that day.

He pointed out in the opinion that the railroads in attacking the rates failed to sustain their case, because of too general methods employed in separating the intrastate operations from the interstate. And the value of the railroad property was improperly divided between intrastate and interstate business on a gross revenue basis. He also criticized the lower court's conclusion that intrastate freight traffic cost 210 per cent. more on the Iron Mountain road and 250 per cent. more on the St. Louis Southwestern than interstate traffic, and the intrastate passenger service on the Iron Mountain cost 10 per cent. more than the interstate.

Railroad Police.

The seventeenth annual convention of the International Association of Railway Special Agents and Police was held at Salt Lake City, Utah, June 18 and 19. The president of the association for the ensuing year is J. W. Connelly, Washington, D. C. The meeting next year will be held at Norfolk, Va. The secretary of this association is W. C. Pannell, Baltimore, Md.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Boston, Mass. Convention, May 19, 1914, St. Louis.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, New York. Annual meeting, October 14-15, Philadelphia, Pa.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, St. Louis, Mo.; 3d Friday of March and September.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOC.—H. G. McConnaughy, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York. Next meeting, November 19, 1913, Chicago.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Convention, October 21-24, 1913, Montreal.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—A. R. Davis, Central of Georgia, Macon, Ga. Next convention, July 22-24, Chicago.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wenlinger, 11 Broadway, New York; 2d Tuesday of each month, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Baltimore, Md. Next convention, January 20-22, 1914, New Orleans, La.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago. Annual meeting, May 28, Atlantic City, N. J.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago. Annual convention, October 18-24, Chicago.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 112 West Adams St., Chicago.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York.

ASSOCIATION OF WATER LINE ACCOUNTING OFFICERS.—W. R. Evans, Chamber of Commerce, Buffalo, N. Y. Annual meeting, October 8, Philadelphia, Pa.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—H. A. Neally, Joseph Dixon Crucible Co., Jersey City, N. J. Meeting with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and Aug., Montreal.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursday, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July, August and September, St. Paul.

ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, Oliver building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, 922 McCormick building, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 829 West Broadway, Winona, Minn. Next convention, July 15-18, Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio. Annual meeting, August 18, Richmond, Va.

MAINTENANCE OF WAY & MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—W. G. Wilson, Lehigh Valley, Easton, Pa.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOC. OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Annual meeting, September 9-12, Ottawa, Can.

NATIONAL RAILWAY APPLIANCE ASSOC.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.

NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.

NORTHERN RAILROAD CLUB.—C. L. Kennedy, C., M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria; 2d Thursday.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 2 Rector St., New York. Annual dinner, second week in December, 1913, New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Penna R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOC.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.

RAILWAY GARDENING ASSOCIATION.—J. S. Butterfield, Lee's Summit, Mo. Next meeting, August 12-15, Nashville, Tenn.

RAILWAY DEVELOPMENT ASSOCIATION.—W. Nicholson, Kansas City Southern, Kansas City, Mo.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa. Convention, October 14, Nashville, Tenn.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio.

RAILWAY SUPPLY MANUFACTURERS' ASSOC.—J. D. Conway, 2135 Oliver bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. Assocs.

RAILWAY TEL. AND TEL. APPLIANCE ASSOC.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.

RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill. Convention, September 8-12, 1913, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.

TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillsburn, N. Y. Meeting with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library building, St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago.

TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N Y. Annual meeting, August, 1913, Chicago.

UTAH SOCIETY OF ENGINEERS.—R. B. Ketchum, University of Utah, Salt Lake City, Utah; 3d Friday of each month, except July and August.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

Traffic News.

The federal grand jury at Detroit has returned five indictments against the Michigan Central, charging failure to observe its published tariffs regarding the assessment of demurrage charges at Detroit. Three of the indictments refer to demurrage accrued against the American Car & Foundry Company, and two to demurrage accrued against the National Fireproofing Company.

The Chamber of Commerce of Indianapolis, which was recently asked by a committee representing the eastern roads to approve their plan for a 5 per cent. advance in freight rates, has passed resolutions declining to approve the advance until the question has been determined by the Interstate Commerce Commission. As to intrastate rates the Chamber of Commerce declares that it will strenuously oppose any advance.

The New England Lines Industrial Bureau conducts a hundred-acre farm in Maine and this year is raising potatoes, sugar beets, grain and garden truck. This farm does not take in a whole county, as would seem to be indicated by some of the newspaper items which have been published concerning it, but it is an extensive experiment, nevertheless. The managers hope to show that potatoes can be grown as successfully in Washington County as in Aroostook County.

The Central of Georgia is the latest newcomer in the ranks of the railroads which publish a periodical for the benefit of ticket agents, conductors, baggage men, etc. "The Right Way" is the title of this paper, and Vol. 1, No. 3, is dated June, 1913. It is a small four-page sheet and is issued by the Passenger Traffic Department, Savannah. "Safety First" appears also to be a prominent feature of the publication, and an article by D. C. Boy, assistant chief of the Educational Bureau, contains exhortations to the employees in this line. The illustrations in this issue are one of a new station which has been opened at Barnesville, and one of Commodore W. H. Fisher, of the company's Ocean Steamship Line, who has retired after 41 years' continuous service.

The Lehigh Valley has remodeled one of its large dining cars, 77 ft. 8 in. long, to serve as a traveling exhibition and meeting hall to promote the road's industrial opportunities and its agricultural territory. This car will be put to much more diverse uses than the ordinary agricultural demonstration car. At times it will be divided into a kitchen, dining room and bedroom, and used to teach and illustrate domestic science. Experts from the New York State College of Agriculture at Ithaca have volunteered to carry on this work of teaching food values, proper methods of cooking and sanitary care of the home. At other times the car will be provided with literature, maps, models, photographs, drawings, blueprints, stereopticons, and moving pictures of factory sites and local industries along the line.

Reductions in Passenger and Freight Rates.

The railroads affected by the recent decision of the Supreme Court of the United States in the Minnesota cases, are quite generally announcing changes to be made in tariffs in compliance with the decision. The Chesapeake & Ohio will reduce passenger fares in West Virginia to 2 cents a mile, July 1. There are outstanding thousands of coupons which have been issued with tickets in West Virginia since the beginning of the lawsuits, entitling passengers to a refund of the difference between what they have paid and what is now declared to be the legal rate.

The railroads in Missouri affected by the decision announce that they will put the new rates in force "at the earliest practicable date." Attorneys representing thirteen roads concerned have notified J. M. Atkinson, chairman of the Missouri Public Service Commission, of their desire to meet the commission as soon as possible to formulate a method of putting the rates in operation and fixing the date when they shall be effective. Though the Supreme Court upheld the two-cent passenger rate, the matter of equitable adjustment of rates, the attorneys say, lies with the State Public Service Commission. It is expected that the new rates, both passenger and freight, will go into effect by July 1.

Seven roads operating in Minnesota have announced that they will take action under the terms of the recent decision of the court in the Minnesota cases, and that probably the new rates will be placed in effect by July 10. Refunds of overcharges will be made in all cases where proper proofs of such overcharges are produced.

At Red Wing, Minn., indictments have this week been returned by the county grand jury charging violation of the two-cent passenger rate law against the Chicago Great Western, the Chicago & North Western and the Chicago, Milwaukee & St. Paul. The indictments are the result of action taken by Judge Albert Johnson of the County Court nearly a month ago. At that time the United States Supreme Court had not rendered its decision in the Minnesota cases, and it was generally supposed that all state and county officers were restrained from acting in the matter; but Judge Johnson charged the grand jury that it should indict the railroads which have violated the two-cent law in the state. The jury failed to return any indictments; the judge was indignant and instead of discharging the jury at that time, said he would call the members together later. This week he repeated his demand that they indict the railroads, and the present action of the jury follows his charge.

Car Location.

The accompanying table, which is taken from bulletin No. 7 of the American Railway Association, gives a summary of freight car location by groups on May 31, 1913.

Car Location on May 31, 1913.

	New England.	N.Y., N.J., Del., Md., Eastern Pa.	Ohio, Ind., Mich., Western Pa.	Va., W. Va., No. & So. Carolina.	Ky., Tenn., Miss., Ala., Ga., Fla.	Iowa, Ill., Wis., Minn.	Mont., Wyo., Neb., Dakotas.	Kans., Colo., Okla., Mo., Ark.	Texas, La., New Mexico.	Oregon, Idaho, Nev., Cal., Ariz.	Canadian Lines.	Grand Total.
Total Cars Owned	87,886	680,074	274,106	202,821	171,777	465,896	17,208	151,695	31,157	130,539	120,228	2,333,387
Home Cars on Home Roads	41,989	382,622	95,992	108,433	84,395	308,147	5,471	77,893	14,704	74,665	82,121	1,276,432
Home Cars on Foreign Roads	45,897	297,452	178,114	94,388	87,382	157,749	11,737	73,802	16,453	55,874	38,107	1,056,955
Foreign Cars on Home Roads	50,676	319,025	227,177	86,489	79,785	171,959	8,513	62,030	20,604	52,223	44,711	1,123,192
Total Cars on Line	92,665	701,647	323,169	194,922	164,180	480,106	13,984	139,923	35,308	126,888	126,832	2,399,624
Excess or Deficiency	4,779	21,573	49,063	*7,899	*7,597	14,210	*3,224	*11,772	4,151	*3,651	6,604	66,237
Surplus	1,409	5,779	2,122	6,434	2,344	9,915	950	8,416	3,869	15,721	3,332	60,291
Shortage	138	1,168	351	2,278	1,264	1,623	188	190	14	519	1,650	9,383
Shop Cars—												
Home Cars in Home Shops	4,398	36,020	17,882	12,217	13,674	23,262	835	10,582	2,101	6,189	4,003	131,163
Foreign Cars in Home Shops	1,134	9,404	7,617	2,529	2,495	4,074	602	2,363	847	2,935	736	34,736
Total Cars in Shops	5,532	45,424	25,499	14,746	16,169	27,336	1,437	12,945	2,948	9,124	4,739	165,899
Per Cent. to Total Cars Owned—												
Home Cars on Home Roads	47.78	56.26	35.02	53.46	49.13	66.14	31.79	51.35	47.19	57.20	68.30	54.70
Total Cars on Line	102.24	103.17	117.80	96.11	95.58	103.05	81.26	90.53	113.32	97.20	105.49	102.84
Home Cars in Home Shops	5.01	5.30	6.52	6.02	7.96	5.35	4.85	6.97	6.74	4.74	3.33	5.70
Foreign Cars in Home Shops	.88	1.38	2.78	1.25	1.45	.93	3.50	1.45	2.72	2.25	.61	1.51
Total Cars in Shops	5.89	6.68	9.30	7.27	9.41	6.28	8.35	8.42	9.46	6.99	3.94	7.21

*Denotes deficiency.

Car Surpluses and Shortages.

Arthur Hale, chairman of the committee on relations between railroads of the American Railway Association, in presenting statistical bulletin No. 145-A, giving a summary of car surpluses and shortages by groups from March 13, 1912, to June 14, 1913, says: The total surplus on June 14, 1913, was 71,126 cars; on May 31, 1913, 60,291 cars; and on June 20, 1912, 73,464 cars. Compared with the preceding period; there is an increase in the total surplus of 10,835 cars, of which 9,331 is in box, 100 flat, 1,907 in miscellaneous, and a decrease of 503 in coal car surplus. The increase in box car surplus is in groups 2 (New York, New Jersey, Delaware, Maryland and eastern Pennsylvania), 3 (Ohio, Indiana, Michigan and western Pennsylvania), 5 (Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida), 6 (Iowa, Illinois, Wisconsin and Minnesota), 7 (Montana, Wyoming, Nebraska and the Dakotas), 8 (Kansas, Colorado, Oklahoma, Missouri and Arkansas), 10 (Washington, Oregon, Idaho, California, Nevada and Arizona), and 11 (Canadian lines). The increase in flat car surplus is in groups 4 (the Virginias and Carolinas, 8 (as above), 9 (Texas, Louisiana and New Mexico), and 10 (as above). The increase in miscellaneous car surplus is in groups 3, 5, 7, 8, 10 and 11 (as above). The decrease in coal car surplus is in groups 2, 4, 6, 7, 8 and 9 (as above).

The total shortage on June 14, 1913, was 7,199 cars; on May 31, 1913, 9,383 cars; and June 20, 1912, 5,746 cars. Compared with the preceding period; there is a decrease in the total shortage of 2,184 cars, of which 958 is in box, 23 in flat, 1,076 in coal and 127 in miscellaneous cars. The decrease in box car shortage is in groups 3, 5, 6, 7 and 10 (as above). The decrease in flat car shortage is in all groups except 1 (New England lines), 3 and 11 (as above). The decrease in coal car shortage is in groups 1, 2, 4, 10 and 11 (as above). The decrease in miscellaneous car shortage is in groups 3, 8, 10 and 11 (as above).

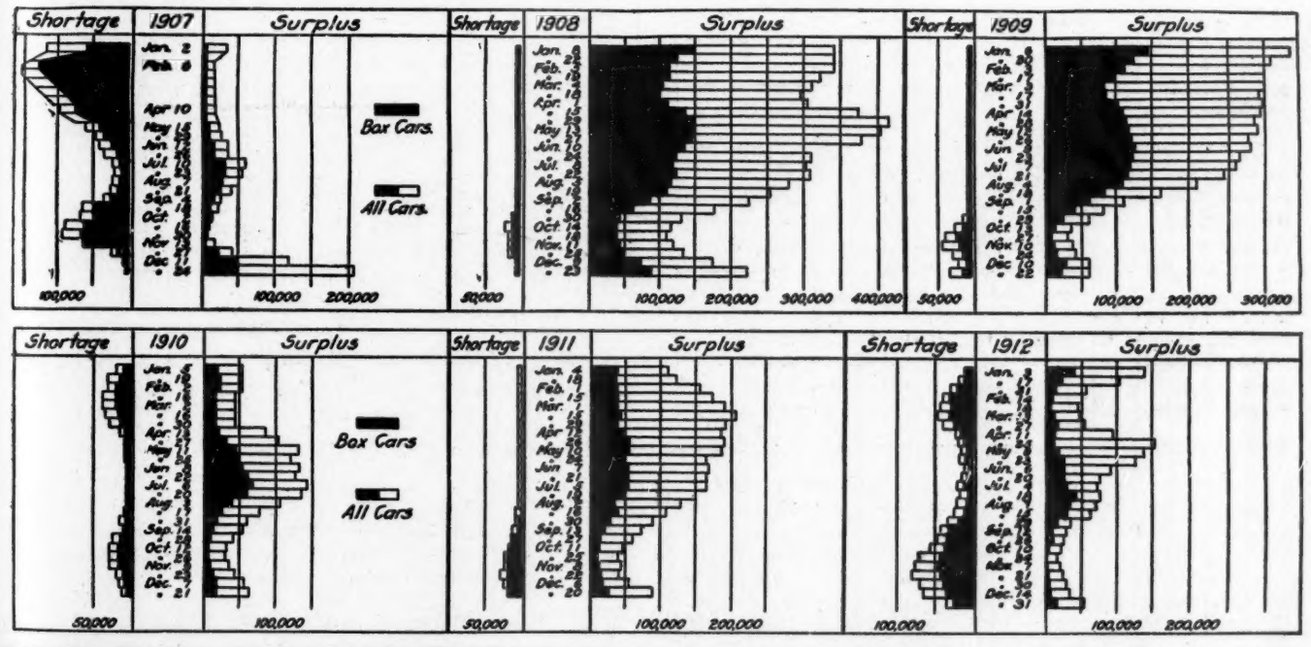
Compared with the same date of 1912; there is a decrease in the total surplus of 2,338 cars, of which 51 is in flat, 8,221 in coal, 640 in miscellaneous, and an increase of 6,574 in box car surplus. There is an increase in the total shortage of 1,453 cars, of which 36 is in box, 78 in flat, 1,583 in coal, and an increase of 244 in miscellaneous car shortage.

The accompanying table gives car surplus and shortage figures by groups for the last period covered in the report and a diagram shows total bi-weekly surpluses and shortages from 1907 to 1913.

CAR SURPLUSES AND SHORTAGES.

Date.	No. of roads.	Surpluses Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.	Shortages Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.
Group *1.—June 14, 1913	7	491	668	6	112	1,277	111	143	85	5	344
" 2.— " 14, 1913	35	904	33	715	569	2,221	0	0	0	0	0
" 3.— " 14, 1913	32	4,037	179	1,756	2,341	8,313	81	99	135	5	320
" 4.— " 14, 1913	13	3,900	123	939	813	5,775	197	534	1,202	85	2,018
" 5.— " 14, 1913	28	1,612	0	425	898	2,935	306	309	280	0	895
" 6.— " 14, 1913	31	3,650	151	1,706	3,409	8,916	1,169	29	152	39	1,389
" 7.— " 14, 1913	5	354	20	398	406	1,178	92	0	0	0	92
" 8.— " 14, 1913	19	6,156	348	2,000	2,967	11,471	138	38	128	0	304
" 9.— " 14, 1913	15	1,710	356	263	904	3,233	0	0	4	25	29
" 10.— " 14, 1913	20	6,758	1,205	2,694	9,718	20,375	17	79	0	85	181
" 11.— " 14, 1913	7	3,608	189	196	1,439	5,432	1,094	402	47	84	1,627
Total	212	33,180	3,272	11,098	23,576	71,126	3,205	1,633	2,033	328	7,199

*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida lines; Group 6—Iowa, Illinois, Wisconsin and Minnesota lines; Group 7—Montana, Wyoming, Nebraska, North Dakota and South Dakota lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Washington, Oregon, Idaho, California, Nevada and Arizona lines; Group 11—Canadian lines.



Car Surpluses and Shortages, 1907 to 1913.

Summary of Revenues and Expenses of Steam Roads in April.

The Bureau of Railway Economics' summary of revenues and expenses and comments thereon for April, 1913, are as follows: The railways whose returns are included in bulletin

No. 49 operate 222,156 miles of line, or about 90 per cent. of the steam railway mileage in the United States. Total operating revenues for the month of April, 1913, amounted to $237,362,424. Compared with April, 1912, the total operating revenues show an increase of $22,893,968. These total operating revenues per mile of line averaged $1,068 in April, 1913, and $974 in April, 1912, an increase of $95, or 9.7 per cent. Freight revenue per mile increased 12.4 per cent., and passenger revenue per mile 2.5 per cent.

Operating expenses amounted to $179,024,990. This was $21,059,895 more than for April, 1912. These operating expenses per mile of line averaged $806 in April, 1913, and $717 in April, 1912, an increase of $89 per mile, or 12.3 per cent.

Net operating revenue amounted to $58,337,434. This was $1,834,073 more than for April, 1912. Net operating revenue per mile of line averaged $263 in April, 1913, and $257 in April, 1912, an increase of $6 per mile, or 2.4 per cent.

Taxes for the month of April amounted to $10,482,492, or $47 per mile, an increase of 7.9 per cent. over April, 1912.

Operating income averaged $214 per mile of line, and in April, 1912, $212, thus increasing $2, or 0.9 per cent. Operating income for each mile of line for each day in April averaged $7.13, and for April, 1912, $7.07.

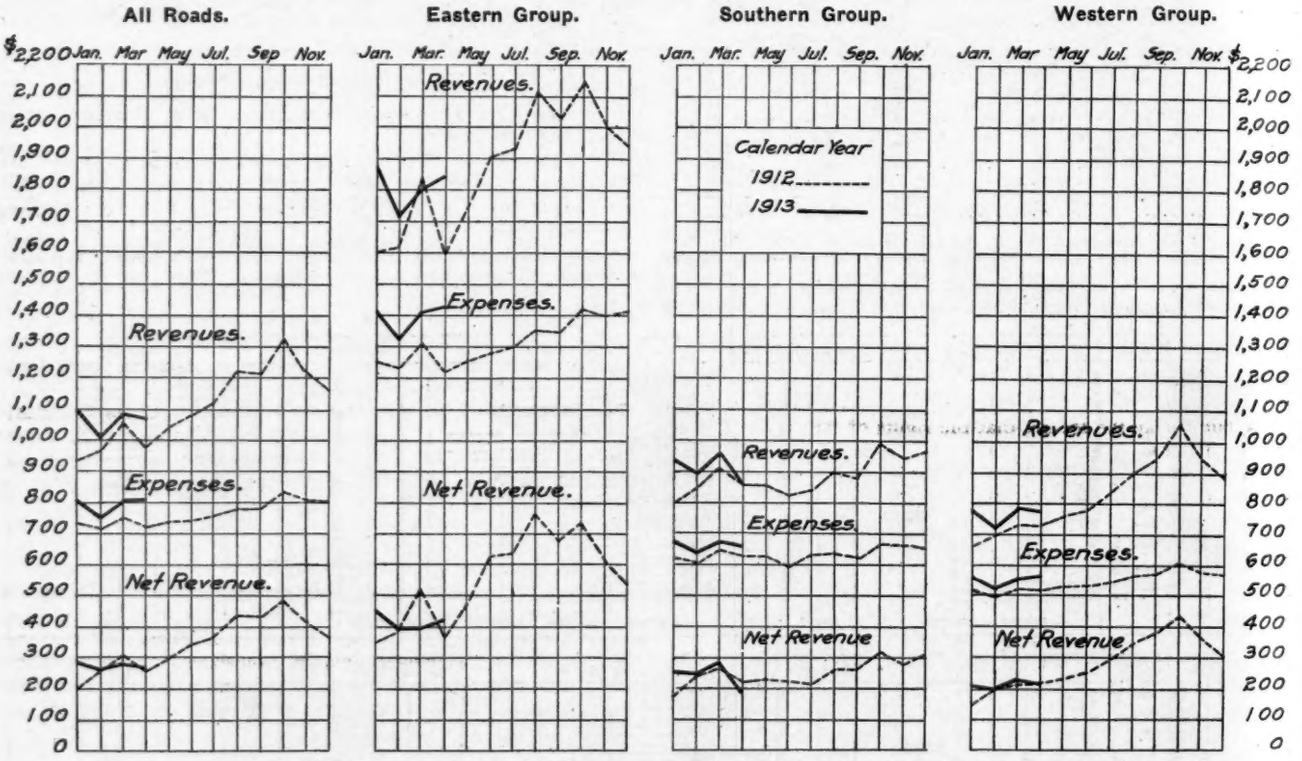
The operating ratio for April was 75.4 per cent., which is comparable with 73.9 per cent. in March, 1913, and 73.6 per cent. in April, 1912.

The railways of the eastern district show an increase in total operating revenues per mile of line as compared with April, 1912, of 16.5 per cent., the railways of the southern district show an increase of less than one-tenth of 1 per cent., while the railways of the western district show an increase of 7.0 per cent. Operating expenses per mile increased 17.0 per cent. on the eastern railways, 4.9 per cent. on the southern railways, and 10.7 per cent. on the western railways. For the eastern railways net operating revenue per mile increased 15.0 per cent., for the southern railways it decreased 13.5 per cent., and for the western railways it decreased 1.9 per cent. The increase in taxes per mile was 10.3 per cent. in the eastern district, 6.7 per cent. in the southern district, and 6.2 per cent. in the western district. Operating income per mile increased 14.6 per cent. in the East, decreased 16.5 per cent. in the South, and decreased 3.2 per cent. in the West.

Comparison of the returns for the ten months of the fiscal year 1913, with those of the corresponding months of the previous fiscal year reveals an increase in total operating revenues per mile of 9.5 per cent., an increase in operating expenses per mile of 9.3 per cent., and an increase in net operating revenue per mile of 9.9 per cent. This net operating revenue per mile of the eastern railways increased 7.1 per cent. as compared with the corresponding period of the previous year, that of the southern railways increased 4.1 per cent., and that of the western railways increased 14.8 per cent.

When the returns for the four months of the calendar year 1913 are compared with those of the corresponding months of 1912, they show an increase in total operating revenues per mile of 8.7 per cent., an increase in operating expenses per mile of 9.2 per cent., and an increase in net operating revenue per mile of 7.0 per cent. This net operating revenue per mile increased 2.6 per cent. in the eastern district as compared with the corresponding period of the previous year, increased 8.9 per cent. in the southern district, and increased 11.0 per cent. in the western district.

The diagram shows the variations in operating revenues, operating expenses, and net operating revenue per mile for the separate months of the calendar year 1912 and of the calendar year 1913 to date. The following table shows the per cent. of operating revenues consumed by each class of expenses:



Monthly Revenues and Expenses Per Mile of Line in 1912 and 1913.

PER CENT. OF TOTAL OPERATING EXPENSES.

	April,		Fiscal year ended June 30,		Calendar year ended December 31,	
	1913.	1912.	1912.	1911.	1912.	1911.
Maintenance of way and structures	15.5	13.5	12.7	12.9	12.8	12.7
Maintenance of equipment	17.8	16.8	15.8	15.5	16.0	15.7
Traffic expenses	2.1	2.3	2.2	2.2	2.0	2.1
Transportation expenses	37.4	38.3	35.9	35.5	35.5	35.4
General expenses	2.6	2.7	2.5	2.5	2.4	2.5
Total operating expenses	75.4	73.6	69.1	68.6	68.7	68.4

Important Change in Traffic Sources.

The steady development in recent years of the country between St. Louis and eastern Texas is demonstrated by a table issued by the St. Louis Southwestern, showing the decline in carload lots of farm products shipped to St. Louis from Texas.

The high-water mark for strawberries was in 1907, when 126 cars were shipped. The following year the number dropped to 50, in 1909 to 39, and to two in 1911.

This year's mark is 39. Cabbages have dropped from 39 cars in 1908 and 1909 to two cars this year. The largest drop is in potatoes, of which 853 cars were shipped in 1908, against 28 this year. A total of 411 cars has been shipped so far in 1913, and only 239 in 1912, against 1,883 in 1908.—*St. Louis Republic.*

A Shipper's Views as to Why Freight Rates Should Be Higher.

The following paragraphs are from an address by George W. Simmons, vice-president, Simmons Hardware Company, St. Louis, Mo., before the Traffic Club of Philadelphia on March 17 last, repeated before the Transportation Club of Indianapolis, April 10:

Ever since early in 1908, our firm and its officers have been advocating publicly that the railroads should be allowed to increase their rates. While the Simmons Hardware Company pays in freight charges to the railroads probably as much as any firm in the country, and from the nature of our business we could not add to our selling prices any increase in transportation charges, we still earnestly advocate an increase in freight rates, feeling absolutely confident that in the immense volume of business which would immediately result through the wonderful prosperity of the country caused by increased railroad development, we will reap our share of the harvest far and away in excess of the amount of increased expenses for freight. When we started talking this way five years ago, few shippers agreed with us and even many railroad men thought we were playing to the grandstand, or in some way bidding for railroad favor. Today, however, practically every one who studies this subject agrees with us and thousands of shippers in various states who vigorously opposed such an idea five years ago, are now convinced of the logic of it. That is but one of the many evidences of the change in public sentiment on this subject. The public is beginning to realize that in the event of calamity and disaster, such as occurred from the storms in this section a couple of weeks ago, the dollars and cents loss to the railroads from unexpected causes beyond their control is, in many cases, more than they might pay out in dividends to their stockholders in an entire year, and in others sufficient to change an entire year's profits into loss.

There is no longer any general desire to persecute the railroads, but simply the feeling that the rights of the public must be conserved. On the other hand, the impression is growing throughout the country that the railroads have gotten the sharp end of the stick in a good many ways of late—in labor disputes about wages and in the advance in the cost of everything they buy. Sooner or later this feeling will spread so that the members of the Interstate Commerce Commission will recognize the wisdom and common sense of such public opinion, and be influenced by it. The members of that commission are reasonable, honorable, sincere men of great ability. I believe that they will soon realize that the time has come to modify their policy towards the railroads, so that they may expand and grow upon conservative lines.

In considering the railroad problem, if we lay aside all technical arguments and look at it only from the basis of common fairness, and after all no transaction can be permanently successful unless it is based on fairness to all parties concerned, we find that the railroads' expenditures have increased in every way, most of them beyond the power or control of the railway management, partly from public demand and partly by legislation; therefore, common fairness would permit them to advance their selling prices to offset at least a part of this advance in cost, but the fact remains that railroad rates in this country have been constantly decreasing and are less today than they were thirty years ago.

INTERSTATE COMMERCE COMMISSION.

The commission has suspended from June 30 until September 29, certain schedules in the tariff of the Hocking Valley, which would advance rates on brick, c. l., from certain Ohio points to Huntington, W. Va.

The commission has further suspended from July 1 until January 1, the operation of the items in a supplement to Agent W. H. Hosmer's tariff which would advance rates on brick from Chanute and other points in Kansas to points in Iowa and Illinois.

The commission has suspended from July 1 until January 1, the supplement to Agent W. H. Hosmer's tariff which would advance rates on hay, in carloads, from St. Paul and Minneapolis, Minn., and points taking same rates to Ohio river crossings.

The commission has denied the petition of the eastern roads for the reopening of Case No. 3400—the application filed in 1910 for leave to increase freight rates—but has intimated that an original investigation of the whole rate question, to be made on the commission's own motion will soon be ordered.

The commission has suspended from June 20 until October 18, certain schedules in Agent R. H. Countiss' tariff, which by the elimination of routing from points in the state of Washington on the Bellingham & Northern via Sumas, Wash., the Canadian Pacific, North Portal, N. D., and the Minneapolis, St. Paul & Sault Ste. Marie, sought to increase rates applicable to the transportation of lumber and articles taking same rates to points in North Dakota and other states. The present rate applicable to shipments of cottonwood, fir, hemlock, larch and spruce lumber, in carloads, from Columbia, Wash., for example, to points in North Dakota on the line of the Minneapolis, St. Paul & Sault Ste. Marie is 40 cents per 100 lbs.; the proposed rate is 43 cents per 100 lbs. Rates to other destinations are affected in like manner.

Rates on Glazed Paper Reduced.

Eggerss-O'Flyng Company v. Chicago Great Western, et al. Opinion by the commission:

The commission decided that first-class rating on glazed or surface-coated paper in less than carloads from Chicago and Mississippi river crossings to Omaha, Neb., was unreasonable, and prescribed third-class rating for the future. In official and southern classifications this commodity in less than carloads is rated third class. (27 I. C. C., 280.)

Rates on Fertilizer Reduced.

Virginia-Carolina Chemical Company v. Atlantic Coast Line. Opinion by the commission:

The commission decided that the advanced rates for the transportation of fertilizer in carloads from Wadesboro, N. C., to various local stations in South Carolina were unreasonable and ordered the defendants to restore the rates in effect prior to February 26, 1912. (27 I. C. C., 234.)

Complaint Dismissed.

Clinton Manufacturers' & Shippers' Association v. Chicago & Alton et al. Opinion by Commissioner Harlan:

The commission decided that the rates on sugar and molasses from certain producing points in Louisiana to Clinton, Iowa, were not unjustly discriminatory as compared with the lower rates on such products from the same points of origin to Chicago. (27 I. C. C., 230.)

Dixie Cotton Oil Company v. St. Louis, Iron Mountain & Southern et al. Opinion by the commission:

A charge by defendants of $3 per car for switching service performed by the St. Louis Southwestern in transporting cars between its junction with the St. Louis, Iron Mountain & Southern's track and complainant's plant in Argenta, Ark., was not found to be unduly discriminatory. (27 I. C. C., 295.)

Rates on Bags, Bagging, etc., Reduced.

Corporation Commission of Oklahoma v. Arkansas, Oklahoma & Western et al. Opinion by Commissioner McChord:

The commission decided that the rates on bags, bagging, cotton-bale ties, and tie buckles from Galveston, Tex., to Oklahoma destinations were unreasonable and discriminatory, and prescribed reasonable rates for the future on a mileage basis. (27 I. C. C., 210.)

Rates on Barrels Reduced.

Alexandria Barrel Company v. Chicago, Rock Island & Pacific et al. Opinion by the commission:

The rate of 39 cents per 100 lbs., with a minimum weight of 20,000 lbs. for the transportation of tight barrels from Alexandria, La., to Houston, Tex., group points and Texas common

point territory was found to be unreasonable to the extent that it exceeds 25 cents to Houston group points and 39 cents to Texas common point territory, with a minimum weight in each instance of 12,000 lbs., subject to rule 6-B of Western classification. Reparation was awarded. (27 I. C. C., 196.)

Import Rates from Boston and New York.

Chamber of Commerce of the State of New York et al. v. New York Central & Hudson River et al. Opinion by Chairman Clark:

The original and supplemental reports in this case are at 24 I. C. C., 55 and 674, mentioned in the *Railway Age Gazette* of October 11, 1912, page 704, and November 1, 1912, page 855, respectively. After exhaustive consideration of all the matters presented on the rehearing the commission decided that the conclusions announced in the original and supplemental reports are correct. (27 I. C. C., 238.)

Import Rates.

The original and supplemental reports in this proceeding are at 24 I. C. C., 78 and 678, mentioned in the *Railway Age Gazette* of November 1, 1912, page 856. Prior decision herein adhered to upon the findings in *Chamber of Commerce case,* 27 I. C. C., 237, which is mentioned above. (27 I. C. C., 245.)

Export Rates on Flaxseed Products.

In re investigation and suspension of advances in rates by carriers for the transportation of linseed oil cake, linseed oil meal, and flaxseed screenings in carloads from Minneapolis and St. Paul, Minn., to Galveston, Tex., and other gulf ports. Opinion by Commissioner Meyer:

Certain respondents, by cancellation of the export rate of 16½ cents per 100 lbs. on flaxseed products from Minneapolis and St. Paul to Galveston and other gulf ports, attempted to withdraw from participation in this traffic. The commission decided that 16½ cents is an unreasonably low rate, but ordered the respondents to keep the route open at a rate not to exceed 22½ cents per 100 lbs. (27 I. C. C., 246.)

Macon, Ga., Discriminated Against.

Freight Bureau of Chamber of Commerce of Macon, Ga., v. Cincinnati, New Orleans & Texas Pacific et al. Opinion by Commissioner Meyer:

In this case the complainant alleges that in the transportation of leather in various forms from Cincinnati, Ohio, and various other points to Macon, Ga., Macon is discriminated against by the maintenance of differentials over Atlanta, Ga., of 27 cents per 100 lbs. in less than carloads and 13 cents in carloads. The commission decided that the present rates in effect to Macon are discriminatory and ordered that for the future rates be established based upon a differential of 3 cents over Atlanta on is rated when no commodity rates are in effect. (27 I. C. C., less-than-carload shipments and 2 cents on carload shipments, which are the differentials above Atlanta on second class in less than carloads and fourth class in carloads under which leather 263.)

Shipment Misrouted.

Lathrop Lumber Company v. Alabama Great Southern et al. Opinion by the commission:

A carload of lumber was forwarded by the initial carrier from Fleming, Ala., to Huntsville, Ala., via an interstate route over which the rate was higher than via an intrastate route. The commission decided that the shipment was misrouted, and that complainant is entitled to reparation on basis of rate via the intrastate route. (27 I. C. C., 250.)

Chicago-Duluth Grain Rates.

In re investigation and suspension of the Chicago-Duluth Grain Rates. Opinion by Chairman Clark:

The suspended tariffs were filed pursuant to the findings in *Superior Commercial Club of Superior, Wis., v. G. N. Ry. Co.,* 24 I. C. C., 96, mentioned in the *Railway Age Gazette* of June 28, 1912, page 1622, and supplemental reports in same case, 25 I. C. C., 342, mentioned in the *Railway Age Gazette* of January 3, 1913, page 33. The commission decided that the previous findings should be adhered to and the order of suspension was vacated. The new adjustment will result in direct rates to Milwaukee for reconsignment to the East one cent per 100 lbs. higher than upon shipments moving through Minneapolis. (27 I. C. C., 216.)

Containers and Classification Rules.

Sea Gull Specialty Company. v. Baltimore Steam Packet Company et al. Opinion by Commissioner Meyer:

The complainant attacks the charge of 20 per cent. above third-class rates on shipments of baking powder in a fiber board container which the defendants allege does not comply with the provisions of classification rules. Refund is asked of charges in excess of third class and the amendment of rules so as to include complainant's container without penalty. The commission found that rule 4 (c) of southern classification No. 38 did not authorize the assessment of a 20 per cent. penalty in this particular instance.

The requirement in rule 9 (a) of southern classification No. 39 that metal bands should encircle the ends of Sea Gull boxes is unjust, unreasonable, and discriminatory. Complainant's box should be accepted without penalty.

"It is not just or fair to the shipping public to promulgate as a basis for determining rates a classification the terms of which are indefinite or impracticable of application, either in whole or in part."—*Pacific Coast Biscuit Co.* v. *S. P. & S. Ry. Co.,* 20 I. C. C., 546.

The duty should be placed upon carriers' agents to notify shippers whenever their containers do not comply with specifications laid down in classification rules. This responsibility should rest upon the initial carrier. Reparation was awarded. (27 I. C. C., 267.)

Milling-in-Transit Privileges at Decatur, Ill.

William H. Suffern Grain Company v. Illinois Central et al. Opinion by Commissioner McChord:

The commission decided that the refusal of the defendants to grant an elevation allowance on grain at Decatur, Ill., while such allowance is made at Cairo, Ill., was not unjustly discriminatory.

Decatur now has transit privilege under which it reaches a large portion of Mississippi valley territory at rates not higher than the combination on Cairo. Defendants proposed to extend this privilege via Illinois Central and connections to all points in Mississippi valley and the Southeast, and to accord to Decatur whatever Cairo has in respect of transit on through rates to Louisiana. When this is done, the complaint will be dismissed. (27 I. C. C., 192.)

Proportional Rates on Grain Products to Texas.

In re investigation and suspension of advances in rates by carriers for the transportation of grain products from southern Illinois points to points in Texas. Opinion by Commissioner Meyer:

The respondents attempted to cancel the proportional rates on grain and grain products from certain interior milling points in southern Illinois via St. Louis, Kansas City and other river crossings to various groups in Texas. The commission decided that the carriers should free these Illinois millers of the threatened disadvantage and remove the inconsistencies prevailing in the flat rates. Such relief may be by way of a milling-in-transit privilege specifically described in the tariffs at a charge not to exceed one-half cent per 100 lbs., or otherwise, as the carriers may elect. (27 I. C. C., 282.)

Boat Lines and Connecting Railways.

Truckers Transfer Company v. Charleston & Western Carolina. Opinion by Commissioner Meyer:

The complainant, a boat line, seeks the establishment of through routes and joint rates from certain river landings near Port Royal, S. C., and asks that it be made a connecting carrier upon the same basis as its competitor, the Beaufort Transportation Company. The commission held that as interstate commerce was not subject to state law, it would not fall within the prohibition of a charter granted by a state legislature. Incorporation is not a condition precedent to the right to be a common carrier, so far as interstate transportation is concerned.

The question of establishing joint rates or declining to do so rests in the discretion of the commission.

When boat lines have met all reasonable requirements of connecting railways with respect to security for freight charges, adequacy of service, efficiency of management, and any other guaranty which may justly and lawfully be required, they should be permitted to establish through routes and publish joint rates with their connecting railways.

The record does not show that complainant is capable financially and physically of assuming the obligations which through routes and joint rates would impose upon it. The complaint was dismissed. (27 I. C. C., 275.)

Pig Iron Rates Not Increased.

In re investigation and suspension of advances in rates by carriers for the transportation of pig iron in carloads from Buena Vista, Va., and other points to Philadelphia, Pa., and other destinations. Opinion by Commissioner McChord:

The commission decided that the proposed advances in the rates on pig iron, ranging from 10 cents to 45 cents per ton from producing points in Virginia to points in Pennsylvania and New Jersey were not shown to be reasonable and ordered the suspended tariffs withdrawn. (27 I. C. C., 343.)

Wharfage Practices Discriminatory.

In re discriminations in the use of wharfage facilities at Pensacola, Fla. Opinion by Commissioner Marble:

The Louisville & Nashville has wharfage facilities, including docks and spur tracks at Pensacola, Fla., which it claims are private facilities. Complaints were made against certain practices of the railroad in the administration of these facilities. The railroad admits that it affords ship-side delivery at these wharves on domestic traffic to or from non-competitive points, as well as on export and import traffic, while refusing such delivery in the case of shipments to or from points which are reached by it or its connections. It admits that it has refused to deliver shipments at the warehouse of a certain steamship company, while making delivery on these so-called private facilities to other consignees. It admits also that when it has application for more berth room than it can provide, it gives a preference in berthing to vessels consigned to the Gulf Transit Company, which is owned by it. In support of its contention that the wharf facilities are private, the railroad refers to the decision of the Supreme Court, *L. & N. R. R. Co. v. West Coast Naval Stores Co.*, 198 *U. S.* 483. That case was decided in 1905, and the commission found that since then the interstate commerce act had been amended so as to bring docks within its jurisdiction. The commission decided that the practice of refusing to deliver at ship side to vessels other than those belonging to or consigned to the Gulf Transit Company, or to receive at ship side from such vessels, property transported, or to be transported in commerce, subject to the act to regulate commerce, while delivering like property at ship side to, and receiving like property at ship side from vessels consigned to or belonging to the Gulf Transit Company, is unreasonable and unduly discriminatory. The refusal of the railroad to make deliveries of carload freight transported, or to be transported in commerce, subject to the act to regulate commerce, consigned to or in care of the Pensacola, St. Andrews & Gulf Steamship Company, at the Jefferson street wharf, while affording such delivery to Avery & Company, or any other person or corporation, is unreasonable and unjustly discriminatory. The practice of the railroad of discriminating in favor of the Gulf Transit Company in the berthing of vessels, is also unreasonable and discriminatory. An order was entered, forbidding the continuation of these practices. (27 I. C. C., 252.)

STATE COMMISSIONS.

The Public Service Commission of Massachusetts, provided for by the new law, which is noticed on another page of this paper, consists of the five persons named below, the governor having appointed the two new members on June 25: Frederick J. McLeod, of Cambridge, five years; George W. Anderson, of Boston, four years; George P. Lawrence, of North Adams, three years; Clinton White, of Melrose, two years; George W. Bishop, of Newton, one year. McLeod, White and Bishop are the members of the railroad commission, which goes out of existence after a life of 44 years.

COURT NEWS.

The Supreme Court of Illinois has handed down a decision holding that the extension of the charter of a railroad corporation does not require the corporation to again pay the original incorporation fee.

A decision of the Court of Claims declaring illegal certain collections made by the government from the Chicago & Alton for transportation of mails—illegal because of a wrong method of ascertaining average daily weight—is reported in another column of this issue.

The Court of Errors and Appeals on June 18 sustained the order of the Public Utility Commissioners requiring the railroads terminating in Jersey City, Hoboken and Camden to establish commutation fares, and not require passengers to buy tickets to New York or Philadelphia.

The decision of the Supreme Court of the United States in the Minnesota rate cases was reported last week, page 1318. An abstract of that part of the decision dealing with the question of valuation of railway properties for purposes of rate making is given in another column of this issue.

Judge Remster, of the Indiana Circuit Court, has rendered a decision which overrules demurrers of the Lake Erie & Western and the Cincinnati, Hamilton & Dayton, and holds that the Indiana law requiring the installation of automatic block signals is valid. The law as first passed was declared unconstitutional by the Supreme Court, because of uncertainty in its terms, and the railways contended that the same objection applied to recent amendments.

The Public Service Commission of Ohio has won its suit in the Supreme Court of that state, to compel compliance by the Baltimore & Ohio, with an order of the commission, requiring the company to load milk into the cars at all stations where agents are maintained. In this decision the Supreme Court sustains the action of the lower courts in refusing to enjoin the enforcement of the commission's order to abolish the rule which compels shippers to load the milk themselves.

The Supreme Court of the United States on Monday of this week, in the suit of the Missouri Pacific against Tucker, involving rates for the transportation of oil, decided in favor of the railroad, holding that damages awarded by the lower court were excessive. The law of Kansas fixing a minimum rate for the transportation of oil is declared unconstitutional because of the severe penalties provided for violation of the law. The railroad would have been unable to test its validity.

Adams Express Subject to I. C. Law.

The United States Supreme Court, in an opinion by Justice Holmes, deciding a case against the Adams Express Company, in Ohio, holds that the company was rightfully indicted for a violation of the interstate commerce law, requiring exact compliance with the tariff for the transportation of parcels. The decision reverses that of the District Court, which allowed the indictment to be quashed on the ground that the company is not a corporation, but is only a joint stock association. It has been notorious for many years, says the court, that some of the great express companies are organized as joint stock associations [and they have evaded certain responsibilities because of this fact] but, says Justice Holmes, the amendment of the interstate commerce law, in 1910, putting express carriers under the regulations of the law, could hardly have had any other purpose than to bring these joint stock associations under the act. Moreover, the Adams Express Company, in filing tariffs as required by the law, seems to have accepted the plain, ordinary meaning of the statute. If the statute imposes on express carriers the duty of filing tariffs, it is reasonable to suppose that the same law intended to impose upon them the penalty prescribed where the law is not obeyed. In the interstate commerce law, originally, there was doubt, in connection with the wording of Section 10, whether corporations were indictable or not, but this defect was corrected by the law of 1903. The interstate commerce law is constitutional as regards corporations, and no reason is suggested why Congress has not equal power over partnerships, including power to charge the partnership assets with a liability; and to personify the company, so far as to collect a tax, by proceeding against it by the company name. Under the laws of New York

a judgment against a joint stock company binds only the joint property. These express companies have had a semi-corporate standing in the popular mind, and the action of Congress was natural and to be expected.

Interstate Commerce Law Not Applicable to Street Railroads.

The decision of the Supreme Court of the United States holding that the street railroad of the Omaha & Council Bluffs Company between the two cities named, is not subject to the interstate commerce law, was reported in the *Railway Age Gazette* of June 13, pages 1304 and 1336. The full text of the opinion, which is by Justice Lamar, shows that the decision was based on the conclusion that the interstate commerce law, as passed by Congress in 1887, did not apply to street railroads. Congress did not intend that the word "railroad" should include such lines. Senator Cullom, in the debate on the passage of the interstate commerce law, said expressly that it did not apply to street railways in cities. This fact was brought up in the lower court, but the Supreme Court, agreeing with the Commerce Court, decides that the meaning of the statute cannot be determined from statements used in debates. It must be interpreted by its own terms. On this basis the conclusion is that Congress did not mean to apply the term "railroad" to street railroads. In 1887 the word "railroad" had no fixed, accurate meaning. The appellants cited decisions from twelve states holding that in a statute the word does not mean street railroads, but the other side cited decisions to the contrary from an equal number of states. There is a similar disagreement in the federal courts. The Commerce Court and the Circuit Court took opposite views, and the members of the Interstate Commerce Commission were divided on the subject.

But while the authorities differ on many points, they all agree that the meaning of the word is to be determined by the construction of the statute as a whole. The street railways crossing a state line are, indeed, engaged in interstate commerce, but not the commerce which Congress had in mind when legislating in 1887. Street railways carry passengers from street to street, and from ward to ward, from city to suburbs, etc.; but the Act refers to railroads which are required to post schedules and tariffs, not at street corners, but in "every station," etc. The law requires railroads to make joint rates and provide facilities for interchange of traffic. Every provision of the statute is applicable to railroads, but only a few to street railroads. The evils which the law was intended to cure did not exist on street railroads.

The rise of interurban railroads since 1887 is considered, but the road in question cannot be treated as an interurban. Its line is on private property to some extent, but to how great an extent does not appear.

In amending the interstate commerce law in June, 1910, Congress took notice of street railroads by providing that the commission should not establish any through route between street electric passenger railways, not carrying freight, and railroads of a different character. But this provision was inserted out of abundant caution. This law was passed after the order made by the commission in the Council Bluffs case; it cannot be given a retrospective operation. There is nothing to show that Congress expected to ratify the action of the commission, and it cannot be assumed that the amendment was intended to confer a jurisdiction which had not been originally granted.

The decision reverses the Commerce Court and makes the decree of the Circuit judges permanent.

Decision in the International Coal Mining Suit.

The Supreme Court of the United States, in the case of the Pennsylvania Railroad, plaintiff in error, against the International Coal Mining Company, holds that the coal mining company, claiming damages because secret rebates were given to another company, must prove that it suffered some loss or injury. The court below had sustained a verdict of $12,013 against the road, but the Supreme Court now orders a new trial. The decision is by Justice Lamar.

The International Company shipped large quantities of coal over the Pennsylvania during the seven years ending April 1, 1901. In 1904 it sued for $37,268, the difference between what it had paid and what it would have paid if it had got the same rebates as rival shippers. Prior to 1899, the International Company itself had received rebates and made a claim because it did not receive so large sums as did the rivals, but these claims were thrown out of court at an early stage of the proceedings. After 1899 the International paid tariff rates, while other companies received rebates of 5, 10, 15, 25 and 35 cents a ton, the differences being caused by the different rates in force at previous dates, the rebates being in the nature of adjustments to meet the conditions of long-time contracts. The road, on April 1, 1899, increased tariff rates and discontinued the payment of rebates, except that thereafter the varying rebates above noted were made to save shippers against loss on their contracts. The road claimed that, as these adjustments were in the nature of rate-making, and the rightfulness of the freight bills would be a question for the commission instead of the courts; but the court said that as the whole of the doings of the company in this matter were illegal, the jurisdiction of the court could not be defeated; the statute required the road to abide absolutely by its tariff.

The suit was brought under that section of the law which makes a carrier liable to any person injured; but the coal company did not allege specific damage or injury. A year before the passage of the Interstate Commerce Law a bill was passed, in the Senate, making carriers liable to shippers who had been discriminated against, and stipulating that the amount of the liability should be measured by the difference between the high rate charged and the lowest rate charged to others, but this provision did not get into the law, as it was finally passed.

The court finds very few decisions or authorities which treat of the elements and the measure of damages in cases of this kind, and therefore goes into a long discussion to determine the question on general principles. A number of illustrations are set forth by the court, for example:

If plaintiff and one of the favored companies had both shipped coal to the same market on the same day, the rebate on contract coal may have given an advantage which may have prevented the plaintiff from selling, may have directly caused it expense, or may have diminished or totally destroyed its profits. The plaintiff, under the present statute in any such case being then entitled to recover the full damages sustained;—

But the plaintiff may have sold at the usual profit all or a part of its 40,000 tons at the regular market price, the purchaser, on his own account, paying freight to the point of delivery. In that event not the shipper but the purchaser, who paid the freight, would have been the person injured, if any damage resulted from giving rebates. To say that seller and buyer, shipper and consignee, could both recover would mean that damages had been awarded to two where only one had suffered;—

Or, to take another example—a favored dealer may have shipped 10,000 tons of coal to the open New York market, receiving thereon a rebate of 35 cents a ton, or $3,500. The plaintiff at the same time may have shipped 20,000 tons and sold the same at the regular market price. Under the rule contended for it would then be entitled to 35 cents a ton on 20,000 tons, or $7,000 as damages. Such a verdict, instead of compensating it for losses sustained, would have given to the plaintiff a profit on the carrier's crime in paying a rebate of $3,500 and would have made it an advantage to it instead of an injury for the carrier to violate the law.

It is suggested that the plaintiff should only recover a rebate on 10,000 tons, or on the same weight upon which the carrier had allowed a drawback to the competitor. But, while less drastic, this is still an arbitrary measure and ignores the fact that the same anomalous result would follow if there had been, say, ten dealers, each shipping 10,000 tons on the same day. For each of the ten would have been as much entitled as plaintiff to recover $3,500 on their several shipments of 10,000 tons, and the ten verdicts would aggregate $35,000, because of the payment of $3,500 to the favored shipper.

It was further claimed that an injured shipper could recover if rebates had been habitually given, so as to establish a practice of discrimination. But, says the court, there would still be no adequate proof of the extent of damage; and to adopt the arbitrary basis proposed would create an endless chain of departures from the tariff and would extend the effect of the original crime. The law makes the lawbreaker pay a fine to the government, but this does not give a right of action for a private injury. Three decisions in somewhat similar cases are cited in support of the view that the right to recover is limited to the pecuniary loss suffered and proved. A new trial is ordered.

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF APRIL, 1913.

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total, inc. misc.	Operating expenses: Maintenance: Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.	Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Arizona Eastern	366	$175,998	$43,915	$231,423	$48,050	$21,788	2,513	57,065	7,078	137,494	93,929	—105	11,800	82,024	14,269
Central New England	277	275,344	35,983	327,099	52,220	33,535	1,144	80,765	4,645	172,309	154,790	—896	10,000	143,894	770
Cincinnati, Hamilton & Dayton	1,015	366,114	99,069	533,798	82,770	148,069	17,720	303,684	20,015	572,258	—38,460	.....	34,712	—73,172	—182,346
Fort Worth & Denver City	454	247,007	109,092	376,877	56,402	88,164	7,176	168,483	13,340	333,565	43,312	—591	9,087	33,634	—29,381
Illinois Central	4,763	2,966,847	944,353	4,513,974	845,248	1,051,382	103,123	1,939,613	130,494	4,069,860	444,114	1,650	245,750	196,714	50,932
Lehigh Valley	1,452	3,046,297	376,106	3,530,768	413,071	699,704	80,057	1,143,355	69,270	2,405,457	1,125,311	—50,882	118,500	955,929	904,117
New Orleans & North Eastern	196	227,494	46,198	296,430	34,332	67,005	9,765	111,473	12,370	234,945	61,485	—1,167	11,450	48,868	—17,340
New York, New Haven & Hartford	2,091	2,958,582	2,198,916	5,701,842	773,814	906,540	51,032	2,457,179	163,530	4,352,095	1,349,747	—18,353	315,000	1,016,394	—626,423
Oahu Ry. & Land Co.	101	67,008	23,448	96,600	8,658	8,226	535	25,190	5,272	47,881	48,719	—1,982	6,500	40,237	56,624
Oregon-Washington Railroad & Nav. Co.	1,914	898,586	391,699	1,391,771	212,474	153,202	46,040	524,141	51,825	987,682	404,089	—7,538	96,674	299,877	—28,907
Pecos & Northern Texas	482	$152,830	$36,139	$199,679	$26,113	$41,991	$3,694	$70,238	$8,856	$150,892	$48,787	.....	$6,324	$42,463	—$13,942
Peoria & Eastern	352	140,689	47,333	204,568	96,932	70,813	4,726	117,841	6,207	296,519	—91,951	.....	10,400	—102,351	—130,414
Philadelphia & Reading	1,015	3,417,375	527,336	4,174,078	414,629	796,905	38,423	1,348,265	66,371	2,664,593	—1,509,485	$571	86,371	1,423,685	816,222
Pittsburgh & Lake Erie	223	1,474,819	138,365	1,674,911	176,077	285,422	9,647	397,373	30,898	899,417	775,494	—1,451	55,200	718,843	347,293
Pittsburgh, Shawmut & Northern	279	162,710	8,594	173,746	37,681	40,998	1,310	57,874	5,464	143,327	30,419	.....	1,615	28,804	31,621
Port Reading	21	134,576	.....	142,532	12,584	7	30	33,627	92	46,340	96,192	9,750	8,000	97,942	62,406
Richmond, Fredericksburg & Potomac	88	161,435	102,708	296,140	31,550	26,319	3,355	95,605	7,213	164,042	132,098	—851	721	130,526	48,310
St. Louis & San Francisco	4,742	2,340,321	721,608	3,302,346	381,841	511,275	79,334	1,267,852	103,178	2,343,480	958,866	.....	163,200	795,666	181,511
St. Louis, Brownsville & Mexico	518	198,858	75,159	290,723	35,874	15,342	5,725	120,207	9,972	187,120	103,603	.....	5,500	98,103	—19,280
St. Louis Merchants' Bridge Terminal	9	.....	396	154,963	32,969	15,412	781	82,678	5,755	137,595	17,368	.....	5,600	11,768	7,474
St. Louis, San Francisco & Texas	244	87,975	22,581	118,546	18,589	18,359	2,730	82,613	5,537	127,828	—9,282	.....	1,225	—10,507	—31,765
St. Louis Southwestern	906	492,215	99,472	654,993	64,910	107,582	26,571	172,769	25,356	397,188	257,805	—1,036	37,601	219,168	119,701
St. Louis Southwestern of Texas	703	214,574	68,869	311,782	95,901	74,436	11,759	151,825	20,190	354,111	—42,329	—263	—11,229	—53,821	30,144
San Pedro, Los Angeles & Salt Lake	1,135	502,851	269,863	830,874	97,652	166,797	32,647	291,169	19,220	607,485	223,389	—781	43,900	178,708	—9,466
Southern	7,037	3,861,151	1,334,515	5,657,681	787,871	930,622	189,724	2,037,744	172,323	4,118,284	1,539,397	12,255	209,038	1,342,614	—144,703
Southern in Mississippi	281	38,773	24,744	70,053	23,546	8,666	1,988	43,116	3,866	81,182	—11,129	.....	8,191	—19,320	4,638
Southern Kansas of Texas	125	121,724	16,770	143,342	8,191	34,370	2,242	41,800	3,673	90,276	53,066	.....	2,328	50,738	—14,436
Southern Pacific Co.	6,329	4,163,709	2,589,696	7,348,528	831,695	1,057,177	170,048	2,165,061	224,976	4,448,957	2,899,571	88,464	349,563	2,638,472	—145,821
Spokane, Portland & Seattle	556	253,057	128,782	408,461	69,678	44,118	8,460	103,000	12,415	237,671	170,790	—172	53,400	117,218	17,307
Terminal R. R. Ass'n of St. Louis	34	.....	294	229,163	33,423	26,009	1,006	83,659	5,143	149,240	79,923	6,867	25,560	61,230	39,411
Texas & New Orleans	458	241,392	100,906	364,129	102,119	52,469	8,469	149,608	12,463	325,128	39,001	2,318	13,137	28,162	4,530
Texas & Pacific	1,885	952,108	298,791	1,333,785	192,380	234,121	34,205	693,360	43,978	1,198,044	135,741	121	48,000	87,862	55,104
Toledo & Ohio Central	443	325,424	44,559	391,554	61,619	84,372	8,013	149,055	8,936	311,995	79,559	—478	21,604	57,477	113,109
Trinity & Brazos Valley	463	118,749	36,176	164,340	57,383	44,251	9,582	103,774	11,781	226,771	—62,431	.....	3,500	—65,931	—59,930
Ulster & Delaware	129	76,214	17,438	97,463	9,438	14,259	1,716	36,007	2,595	64,015	33,448	36	3,300	30,184	18,260
Virginia & Southwestern	240	144,251	12,641	160,392	24,801	36,967	1,933	43,285	3,751	110,737	49,655	.....	7,232	42,423	1,305
Wabash	2,515	1,730,785	522,190	2,483,489	365,938	386,778	76,702	1,081,836	75,353	1,986,607	496,882	—4,417	77,384	415,081	532,490
Washington Southern	36	44,395	52,036	127,921	15,202	16,519	1,330	46,175	2,973	82,199	45,722	—124	3,340	42,258	10,560
Western Maryland	543	532,229	71,585	630,252	85,923	87,376	14,830	267,752	15,010	470,891	159,361	.....	20,000	139,361	—47,579
Western Pacific	937	382,542	119,526	516,986	80,394	47,496	33,277	195,481	26,983	383,631	133,355	—592	26,130	106,633	19,509
Western Ry. of Alabama	133	57,793	38,906	106,301	22,239	23,269	5,780	36,175	5,748	93,211	13,090	—42	4,928	8,120	—2,179
Wheeling & Lake Erie	459	312,022	38,100	379,728	167,439	176,647	10,389	193,230	17,228	514,933	—135,204	3,973	27,063	—158,294	—147,520

TEN MONTHS OF FISCAL YEAR, 1913.

Arizona Eastern	366	$1,719,948	$385,301	$2,222,973	$271,913	$174,742	$25,998	$561,352	$85,004	$1,119,009	$1,103,964	$862	$92,343	$1,012,483	$342,923
Central New England	277	2,654,786	299,398	3,104,781	427,590	289,444	11,866	854,978	35,874	1,619,752	1,485,029	—4,680	100,000	1,380,349	11,368
Cincinnati, Hamilton & Dayton	1,015	6,103,577	1,328,149	8,300,954	1,023,115	1,538,381	193,708	3,605,838	194,038	6,555,080	1,745,874	.....	354,950	1,390,924	—340,252
Fort Worth & Denver City	454	2,996,414	1,335,509	4,551,600	479,104	819,381	68,550	1,600,760	146,100	3,113,895	1,437,705	—6,175	106,547	1,324,983	—2,097
Illinois Central	4,763	35,128,365	11,331,213	53,347,611	7,225,286	11,466,258	1,115,788	20,857,496	1,263,687	41,928,515	11,419,096	—64,927	2,401,500	8,952,669	3,102,471
Lehigh Valley	1,452	30,307,580	3,991,006	35,504,676	4,710,911	6,093,339	796,303	11,621,995	697,048	23,919,596	11,585,080	—188,727	1,179,000	10,217,353	1,807,980
New Orleans & North Eastern	196	2,309,303	538,913	3,085,110	330,789	602,152	98,381	1,201,134	122,448	2,354,904	730,206	—3,491	123,531	603,184	—154,838
New York, New Haven & Hartford	2,091	28,778,295	23,181,813	57,457,545	6,460,244	7,866,833	335,007	23,107,284	1,614,872	39,384,240	18,073,305	696,145	3,210,000	15,559,450	—1,304,419
Oahu Ry. & Land Co.	101	677,345	228,935	971,894	88,119	64,878	5,965	216,059	46,328	421,349	550,545	7,908	62,016	496,437	1,527
Oregon-Washington Railroad & Nav. Co.	1,914	10,005,911	4,213,366	15,234,928	2,049,826	1,659,990	457,304	5,547,478	490,605	10,205,203	5,029,725	—45,265	960,113	4,024,347	394,929
St. Louis, Brownsville & Mexico	518	1,512,290	767,481	2,442,096	377,251	247,122	47,812	1,133,341	95,027	1,900,553	541,543	.....	57,447	484,096	—105,703
St. Louis Southwestern of Texas	703	2,839,187	943,212	4,054,143	829,640	785,298	133,950	1,647,089	198,464	3,594,441	459,702	—2,035	108,620	349,047	—21,785
Ulster & Delaware	129	577,989	307,065	930,700	118,421	131,314	12,997	391,244	26,063	680,039	250,661	646	33,000	218,307	13,006
Wheeling & Lake Erie	459	5,441,518	523,464	6,325,104	953,079	1,292,606	83,702	2,126,708	174,033	4,630,128	1,694,976	26,969	298,335	1,423,610	—320,707

Railway Officers.

Executive, Financial and Legal Officers.

E. W. Beatty, general solicitor of the Canadian Pacific at Montreal, Que., will succeed A. R. Creelman as general counsel on July 1.

Alexander Robertson, whose appointment as assistant to the president of the Missouri Pacific System, with headquarters at St. Louis, Mo., has already been announced in these columns, was born at Albany, N. Y., in 1860, and began railway work in 1885 with the Fitchburg Railroad. He remained with that road until April, 1897, successively as brakeman, conductor, general yardmaster, station master and trainmaster. In November of that year he went to the Wabash, and until August, 1903, was consecutively general yardmaster, trainmaster and superintendent of the Middle division. He then became manager of operations of the Western Maryland and West Virginia Central and Pittsburgh, resigning in January, 1904, to become general manager of the Terminal Railroad Association of St. Louis. In November of the following year Mr. Robertson returned to the Western Maryland and West Virginia Central & Pittsburgh as general manager. In April, 1907, he was made vice-president and general manager of the Western Maryland, which absorbed the West Virginia Central & Pittsburgh, and in May, 1911, he was chosen president of that road, resigning January 1 of this year. His appointment as assistant to the president of the Missouri Pacific, as above noted, took effect June 9.

A. Robertson.

Charles R. Thompson, of the Missouri Pacific, has been appointed assistant to the first vice-president of the Texas & Pacific, with headquarters at New Orleans, La.

It is understood that E. N. Brown, president of the National Railways of Mexico, has tendered his resignation. The board of directors have not as yet taken action on this resignation.

Operating Officers.

John McCraw, acting superintendent of the Central Vermont at New London, Conn., has been appointed superintendent of the Southern division, with office at New London.

W. F. Berger, chief train despatcher of the San Antonio & Aransas Pass, has been appointed assistant superintendent, with headquarters at Yoakum, Tex., succeeding H. E. Jones, resigned.

B. B. Tolson, trainmaster of the Mobile & Ohio at Jackson, Tenn., has been appointed superintendent of the St. Louis division, with headquarters at Murphysboro, Ill., succeeding E. W. Moore, deceased.

S. A. Morrison, trainmaster of the Chicago & North Western at Chicago, has been appointed superintendent of the Wisconsin division, with headquarters at Chicago, succeeding F. O'Brien, who has been appointed superintendent of the St. Louis, Peoria & Northwestern. L. M. Davis, chief train despatcher, succeeds Mr. Morrison.

G. H. Trenary, division superintendent of the Chicago & Alton at Salem, Ill., has been appointed superintendent of the Chicago division, with headquarters at Danville, Ill., in place of E. N. Brown, resigned. J. O. Bell, superintendent of the Evansville division at Evansville, Ind., succeeds Mr. Trenary as superintendent of the Illinois division. E. R. Glidden succeeds Mr. Bell. J. E. Epler, acting assistant to the general manager, has been appointed assistant to the general manager in charge of maintenance of equipment, with headquarters at Chicago.

George R. Sinnickson, who has been appointed superintendent of the Schuylkill division of the Pennsylvania Railroad, with office at Reading, Pa., was born on December 24, 1874, in Philadelphia, and graduated from Princeton University in the class of 1896. He entered the service of the Pennsylvania Railroad in 1897, as a chainman on the Delaware & Raritan Canal, and later was made rodman. In September, 1897, he was transferred in the same capacity to the Philadelphia & Erie and the Northern Central, and the following year became rodman on the Delaware & Raritan Canal. He returned to the Philadelphia & Erie in April, 1899, and the following month was made rodman on the Sunbury division. In 1900 he was appointed assistant supervisor on the Amboy division, and the following year was transferred to the New York division in the same capacity, becoming supervisor on the Tyrone division in March, 1903, and the following year he went to the Monongahela division. He also served as supervisor on the West Jersey & Seashore and the Philadelphia division, and in March, 1911, he was appointed division engineer of the Susquehanna and Western division. On January 15, 1913, he was made division engineer of the West Jersey & Seashore, which position he held at the time of his recent appointment as superintendent of the Schuylkill division of the Pennsylvania, as above noted.

G. R. Sinnickson.

Noel W. Smith, who has been appointed superintendent of the Middle division of the Pennsylvania Railroad, with office at Altoona, Pa., was born at Williamsport on December 25, 1869, and was educated in the public schools of his native town. He entered the service of the Pennsylvania as a student in telegraphy at Williamsport, and then until September, 1889, was clerk in the division freight agent's office at the same place. He left railway work in 1889, to enter Lehigh University, and after graduation from that university returned to the service of the Pennsylvania as a rodman on the Sunbury division in April, 1893. He was subsequently assistant supervisor on the Baltimore division of the Northern Central; Renovo and Williamsport divisions of the Erie division; Maryland division of the Philadelphia, Baltimore & Washington, and engaged on experimental track work for the chief engineer of maintenance of way at Harrisburg. In January, 1900, he was promoted to supervisor at Williamsport, and was then transferred in the same capacity, first to Middletown and then to Harrisburg on the Philadelphia division. In December, 1905, he was made supervisor in the office of the principal assistant engineer at Altoona, and in May of the following year was promoted to assistant to the principal as-

N. W. Smith.

sistant engineer at Altoona. In April, 1907, he was made division engineer of the Middle division, and on January 15, 1910, was appointed superintendent of the Central division of the P. B. & W., which position he held at the time of his recent appointment as superintendent of the Middle division of the Pennsylvania as above noted.

Traffic Officers.

L. K. Redman has been appointed general agent of the Chicago & Eastern Illinois at Terre Haute, Ind.

A. W. Davis has been appointed industrial commissioner of the Houston & Brazos Valley, with headquarters at Freeport, Tex.

R. P. Buckingham, soliciting agent of the Missouri, Kansas & Texas, at Houston, Tex., has been appointed traveling freight agent, with headquarters at Waco, Tex.

H. A. Fidler, formerly division freight agent of the Detroit, Toledo & Ironton, is now traffic manager of the Big Sandy & Kentucky River Railway, with headquarters at Ashland, Ky.

C. B. Foster, general passenger agent of the Canadian Pacific, at Winnipeg, Man., has been appointed assistant traffic passenger manager of the Eastern Lines with headquarters at Montreal, Que.

W. E. Downing has been appointed general eastern agent of the Illinois Central, with office at New York, to succeed L. F. Klein, resigned to accept service with another company, effective July 1.

Robert Burns has been appointed traveling freight agent of the Sunset-Central lines of the Southern Pacific, with headquarters at Waco, Tex., succeeding C. W. Higgins, resigned to go to the Southern Pacific Steamship Lines at Galveston, Tex.

J. T. Burke, traveling freight agent of the Delaware & Hudson, with headquarters at Buffalo, N. Y., has been appointed traveling freight agent, with office at New York, succeeding T. J. Lynch, promoted. H. J. Sheffer, general southern freight agent at Philadelphia, Pa., succeeds Mr. Burke, and W. H. Chase succeeds Mr. Sheffer.

Frank H. Plaisted, assistant to the director of traffic of the Southern Pacific, has been appointed assistant director of traffic with headquarters at New York. He was born on June 9, 1866, at Cincinnati, Ohio, and was educated at Central High School, Kansas City, Mo. He began railway work on October 7, 1884, as a clerk on the Kansas City, Fort Scott & Gulf, now a part of the St. Louis & San Francisco. On March 20, 1889, he went to the Union Pacific at Salt Lake City, Utah, and was traveling freight agent of that road for nine years, from 1892; first at Salt Lake City, then at San Francisco, and from April, 1897, when the Oregon Short Line was segregated from the Union Pacific, again at Salt Lake City. From 1902 to October, 1905, he was district freight and passenger agent at Boise, Idaho, of the Oregon Short Line, and then was promoted to assistant general freight agent at Salt Lake City. On January 1, 1912, he was appointed assistant to director of traffic of the Union Pacific and the Southern Pacific systems. In consequence of the order of the Supreme Court, separating the Southern Pacific and the Union Pacific, he resigned on February 6, 1913, as assistant to director of traffic of the Union Pacific, remaining with the Southern Pacific, which position he held at the time of his recent appointment as assistant director of traffic of the same road as above noted.

Engineering and Rolling Stock Officers.

William Stiles has been appointed roadmaster of the Missouri, Kansas & Texas at Atoka, Okla.

William M. Mitchell has been appointed fuel supervisor of the Chicago Great Western, with office at Chicago.

Joseph Smith has been appointed roadmaster of the Second district of the Northern Pacific, with headquarters at Duluth, Minn.

C. J. Rist, formerly division engineer of the Erie at Huntington, Ind., has been appointed assistant engineer maintenance of way of the Pere Marquette, with office at Detroit, Mich.

F. L. Guy has been appointed division engineer of the Eastern division of the Atchison, Topeka & Santa Fe at Emporia, Kan., in place of M. C. Blanchard. H. J. Moore has been appointed division engineer of the Oklahoma division at Arkansas City, Kan., to succeed Mr. Guy. O. West has been appointed acting roadmaster of the Western division, with office at Dodge City, Kan., succeeding W. E. Bohl. E. B. Dehart has been appointed roadmaster of the Colorado division, with headquarters at Pueblo, Colo., in place of B. A. West.

Thomas Benjamin Kennedy, who has been appointed engineer of the Cumberland Valley, with headquarters at Chambersburg, Pa., was born on September 22, 1870, at Chambersburg. He graduated from Chambersburg Academy in 1887, and then took an engineering course at Lafayette College, and at Princeton University. He began railway work in October, 1890, as a rodman and instrument man on the Great Northern. He went to the Cumberland Valley in November, 1892, as a clerk in the auditor's office, and later was transferred to the superintendent's office. From February, 1894, to January of the following year he was draughtsman and instrument man in the maintenance of way department of the same road, and then was appointed assistant supervisor. In May, 1903, he was made supervisor of division B, and later was transferred in the same capacity to division A. He was appointed freight trainmaster in November, 1906, and two years later was made general trainmaster. In July, 1911, he was appointed assistant to engineer in the maintenance of way department, which position he held at the time of his recent appointment as engineer of the same road as above noted.

Arthur Besore Clark, who has been appointed assistant engineer of maintenance of way of the Pennsylvania Railroad, in charge of roadway and track, with office at Philadelphia, Pa., was born at Green Village, on October 1, 1867. He was educated at Mercersburg College, and in 1891, graduated from Lafayette College, with the degree of C.E. During his summer vacations in 1889 and 1890, he was a rodman on the Pennsylvania. After graduation he was rodman on the Philadelphia division, at Philadelphia, and in July, 1896, was promoted to assistant supervisor on the Altoona division, and later held the same position on the Pittsburgh division. In July, 1900, he became supervisor on the Baltimore division, Northern Central Railway, and one year later was transferred to the Pittsburgh division, at Pittsburgh. He was made assistant engineer of the Middle and Western division, Philadelphia & Erie, on December 15, 1905, and was subsequently transferred in the same capacity to the West Jersey & Seashore, and later to the Maryland division of the Philadelphia, Baltimore & Washington. On January 15, 1910, he was appointed principal assistant engineer of the same road, with office at Wilmington, Del., which position he held at the time of his recent appointment as assistant engineer of maintenance of way of the Pennsylvania, as above noted.

A. B. Clark.

The following supervisors on the Pennsylvania Railroad have been transferred: W. T. Hanly from the Pittsburgh division to the Middle division at Newport, Pa.; H. C. Bolenius from the Maryland division to the Pittsburgh division at Conemaugh; Robert Faries from the Trenton division to the Maryland division of the P. B. & W. at Washington, D. C.; E. O. Wood from the Sunbury division to the Trenton division at Trenton, N. J.; J. O. Hackenburg from the Baltimore division to the Pittsburgh division at East Liberty, Pa.; John Atlee from the Buffalo division to the Baltimore division of the P. B. & W. at Parkton, Md.; R. R. Nace from the Cresson division to the Buffalo division at Buffalo, N. Y.; M. W. Clement, su-

pervisor in the office of assistant to the general manager, to the Manhattan division at New York City; B. O. Hultgren, supervisor on the Monongahela division, to the office of assistant to the general manager at Broad Street Station, Philadelphia; M. de K. Smith, Jr., from the Bedford division to the Monongahela division at West Brownsville Junction, Pa.; J. C. Smith, from the Central division to the Bedford division at Bedford, Pa., and Frederick Evans, assistant supervisor on the Middle division, has been appointed supervisor on the Sunbury division of the Northern Central, at Sunbury, Pa.; F. D. Davis, assistant supervisor on the New York division, has been appointed supervisor on the Cresson division at Barnesboro, Pa.; E. C. Silvius, assistant supervisor of the Pittsburgh division, has been appointed supervisor on the Central division of the P. B. & W. at Media, Pa. The following assistant supervisors have also been transferred: E. C. Smith from the Conemaugh division to the Middle division at Huntingdon, Pa.; J. H. Cooper from the Tyrone division to the Conemaugh division at Blairsville; N. D. Vernon from the Maryland division of the P. B. & W. to the New York division at Jersey City, N. J.; J. D. Archibald from the Baltimore division to the Maryland division of the P. B. & W. at Chester, Pa.; W. T. Bevan, from the Monongahela division to the Baltimore division of the P. B. & W. at Baltimore, Md.; E. L. Koch from the Conemaugh division to the Pittsburgh division at East Liberty, Pa.; R. L. Kell from the West Jersey & Seashore to the Conemaugh division at Freeport, and the following transitmen in the office of the engineer maintenance of way, have been appointed assistant supervisors: G. L. Hoffman, of the Monongahela division at Dravosburg, Pa.; C. W. Leach, of the West Jersey & Seashore, at Millville, N. J., and W. G. McNees, of the Tyrone division, at Tyrone, Pa.

John H. Tinker, acting superintendent of motive power of the Chicago & Eastern Illinois, at Danville, Ill., has been appointed superintendent of motive power and machinery, with headquarters at Danville. He was born in August, 1864, at Altoona, Pa., and received a high school education at Altoona and began railway work in July, 1881, as machinist apprentice with the Pennsylvania Railroad. He was made vise shop foreman of the Meadows shops in June, 1896, and in December of the following year was appointed roundhouse foreman at Jersey City, N. J. He again returned to the Meadows shops in December, 1898, as erecting shop foreman, and in January, 1900, was promoted to master mechanic at South Amboy, N. J. He resigned the latter position in November, 1902, to go to the Baltimore & Ohio as master mechanic of the Chicago division, leaving in November, 1903, to become connected with the Model Gas Engine Works as machine foreman. In May, 1904, Mr. Tinker went to the Illinois Central as general foreman at Mounds, Ill., and in May, 1906, left that road to accept the position of assistant master mechanic of the Louisville & Nashville at South Louisville, Ky. Four months later he returned to the Illinois Central as master mechanic at Danville, Ill., and on February 1 of this year he was appointed acting superintendent of motive power. He now becomes superintendent of motive power and machinery, as above noted.

J. H. Tinker.

Purchasing Officers.

J. H. Beggs, maintenance equipment accountant of the Chicago & Eastern Illinois, has been appointed purchasing agent, with headquarters at Chicago, succeeding T. J. Powell.

OBITUARY.

E. W. Moore, superintendent of the St. Louis division of the Mobile & Ohio, with headquarters at Murphysboro, Ill., died in the latter city on June 17. Mr. Moore was born in 1862 at Keokuk, Iowa, and began railway work in 1877 as brakeman on the Keokuk & Des Moines Valley. He was subsequently until October, 1890, brakeman and conductor on the Cairo & St. Louis and the Mobile & Ohio. From the latter date to August, 1902, he was trainmaster of the St. Louis division of the Mobile & Ohio, and was then made superintendent of that division.

Edwin Tracy Jones, auditor of revenue of the Southern Railway, with headquarters at Washington, D. C., died in the Garfield hospital in that city on June 16. He was born at Decatur, Ala., and was educated in the public schools of his native town. He began railway work at the age of 16, as a messenger on the Memphis & Charleston, now a part of the Southern, and then to 1885 held various clerical positions, including that of ticket agent. In 1885 he was in the local office of the same road at Memphis, Tenn., and subsequently was chief clerk and cashier of the Chesapeake & Ohio Southwestern at Memphis, returning to the service of the Memphis & Charleston in 1888, as assistant agent at Decatur, Ala. The following year he entered the auditor's office of the same road at Memphis, and then to 1895 was consecutively cashier of the Louisville, New Orleans & Texas, now a part of the Yazoo & Mississippi Valley, and agent of the Tennessee Midland, now a part of the Nashville, Chattanooga & St. Louis, at Memphis. From 1895 to 1898, he was with the Mallory Steamship Company at Galveston, Tex., and in October of the latter year, was made a clerk in the freight auditor's office of the Southern Railway. In June, 1901, he was appointed auditor of freight accounts, and since July, 1904, was auditor of revenue of the same road. Mr. Jones was in good part responsible for the unusually efficient organization of the Southern Railway auditor of revenue's office.

Propose Chinese Line.—It is understood that a party of engineers, Chinese and foreign, left Shanghai recently with northern Kiangsu as their objective. The visit is in connection with the projected railway from Hsuchowfu to Tsingkiangpu, and it is reported that their intention is to make the necessary purchases of land for the line if this can be done.

Railway Construction in India.—The Southern Shan States Railway is now open for traffic as far as Kywedatson, about 16 miles from Thazi. It will be open before long to Yinmabin, 22 miles; and it is hoped to get up to Kala by next year. Were the line pushed on to Kentung and the Chinese frontier it would mean another 300 miles beyond Taunggy; and the cost would be very heavy. A line, however, continued right through the Southern Shan States would open up a wonderfully rich country.

Baggage Subways in Paris.—There has recently been provided at the Gare du Nord in Paris, France, a subway to facilitate the transfer of baggage from cabs to departing trains. The barrows with baggage descend by seven elevators placed near the ticket offices, baggage registration bureaus and weighing machines, to a subway which passes under five tracks. The empty barrows are brought up by separate elevators, four in number, in the booking hall. The 15 elevators are worked by electricity and are capable of lifting a load of 2,000 lbs., including the weight of the barrow, a distance of 1 ft. 6 in. per second.

Pekin-Kalgan Line, China.—The Pekin-Kalgan Railway continues to prove its value to the Chinese government as a profit-earning medium. It is the pioneer of railways built with Chinese capital and operated by Chinese engineers and that its business continues to increase, considering the heavy grades and great cost of negotiating the Nankou Pass, speaks volumes for the capacity of those who are in control. The unusually high gradients not only compel a heavy fuel consumption but also demand good train crews. The total distance now covered by the line is 141 miles. It was originally built more with a view of its strategic value than with the idea of developing commerce, but its effectiveness in opening up the rich grain producing areas of the table-land has surprised even the most sanguine of its original advocates.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

THE GULF, TEXAS & WESTERN has ordered 1 ten-wheel locomotive from the Baldwin Locomotive Works.

THE BIRMINGHAM & SOUTHWESTERN has ordered 1 ten-wheel locomotive from the Baldwin Locomotive Works.

THE NEW YORK CENTRAL LINES have ordered 1 Mallet locomotive from the American Locomotive Company.

THE HASLAM LAKE TIMBER & LOGGING COMPANY has ordered one locomotive from the Baldwin Locomotive Works.

THE DETROIT & TOLEDO SHORE LINE has ordered 3 consolidation locomotives from the Baldwin Locomotive Works.

THE BOSTON & ALBANY has ordered 6 Pacific type locomotives and 14 mikado locomotives from the American Locomotive Company.

CAR BUILDING.

THE GRAND RAPIDS & INDIANA is in the market for 85 flat cars and 60 gondola cars.

THE SOUTHERN RAILWAY has ordered 250 hopper cars from the Pressed Steel Car Company.

THE ATLANTIC COAST LINE has ordered 100 flat cars from the American Car & Foundry Company.

THE GREAT NORTHERN is said to have ordered 1,000 coal cars from the American Car & Foundry Company. This item has not been confirmed.

IRON AND STEEL.

GENERAL CONDITIONS IN STEEL.—A large number of consumers are holding back orders in the belief that prices will be reduced in the near future. It is not probable, however, that there will be any general reduction in prices for several months, as the mills are in a strong position with a large number of orders on their books. If there is any price cutting it will most likely be on the part of the smaller independent companies. The mills are operating at full capacity and it is expected that the ingot production this month will establish a new high record. A reduction in the output of pig iron is looked for and this will be followed by a shrinkage in the production of steel later on. Many producers feel that the productions of steel in the last half of the year will show a shrinkage, compared with the first half.

A RAILWAY IN ICELAND.—The Consul-General at Copenhagen reports that a railway six and one-half miles long is to be built around the harbor of Reikiavik, Iceland, the first railroad in that country.

AUSTRALIAN RAILWAY PROPOSALS.—A short time ago the Queensland Premier said he had not heard anything definite as to the proposal to link up New South Wales and Queensland railways, via Kyogle and Beaudesert, but there had been some talk of establishing connection between Kyogle and Killarney, via Acacia Creek. The government did not intend to consider any railway proposals this year, but when some of the railway problems now in hand were disposed of, it would be time enough to deal with interstate linking up.

RAILWAYS IN SUMATRA.—The Dutch Indies government now has in Sumatra a line known as the West Coast of Sumatra Railway, which is 152 miles in length, of 3 ft. 6 in. gage, and equipped with 65 locomotives, 74 passenger coaches, and 634 freight cars. This line serves only a very small portion of the west coast of the island, connecting the port of Padang with Fort de Kock, and having three short branches. The only other existing railway in Sumatra is the Deli Railway, a private line on the northeast coast in the rich tobacco-growing district of Deli. This railway radiates in several directions from the capital city of Medan, and comprises about 80 miles of 3 ft. 6 in. gage.

Supply Trade News.

The Isthmian Canal Commission will, until July 9, receive bids on miscellaneous supplies, including switch stands, tie plates, track bolts, track spikes, valves, etc. Circular No. 781.

Judge Snediker, on June 23, appointed Charles L. Harrison receiver and H. M. Estabrook co-receiver for the Barney & Smith Car Company, Dayton, Ohio. Mr. Estabrook is president of the company. The receivers were appointed on the application of Joseph Brothers & Co., Cincinnati, Ohio, creditors to the extent of $11,139. E. F. Platt, a stockholder of the Barney & Smith company gave out a statement that the company was perfectly solvent and that the trouble had been caused by the recent floods.

C. A. Coffin has resigned his position as president of the General Electric Company, Schenectady, N. Y., and has been made chairman of the board of directors. Edwin Wilbur Rice, Jr., senior vice-president and a director of the company, has been made president, succeeding Mr. Coffin. Mr. Coffin was one of a group, who, in 1882, bought control of the American Electric Company, New Britain, Conn., which had been founded in 1880 by Professor Elihu Thomson. This company made arc-lighting apparatus under the Thomson-Houston patents. The plant was moved to Lynn, Mass., and the name of the company was changed to the Thomson-Houston Company. The company grew rapidly under the administration of Mr. Coffin. In 1892, the Thomson-Houston Company was consolidated with the Edison General Electric Company under the name of the General Electric Company, with Mr. Coffin as president. It was he who brought about the agreement between the Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., and the General Electric Company in regard to the exchange of licenses under their respective patents, by which a long struggle over patents was avoided and large sums of money saved. Mr. Coffin foresaw that a large amount of capital would be necessary for the growth and expansion of electrical undertakings and was largely responsible for the education of investors to a correct appreciation of the value of securities of electrical enterprises. For this reason the present development of electrical public utilities is largely due to the efforts of Mr. Coffin.

E. W. Rice, Jr., who has just been elected president of the General Electric Company, Schenectady, N. Y., as mentioned above, was born at La Crosse, Wis., May 6, 1862. After graduating from the Central High School of Philadelphia Mr. Rice became associated with Professor Thomson as assistant and confidant in the American Electric Company, New Britain. When this company was moved to Lynn in 1882, Mr. Rice went with it. In 1884 he was made superintendent and soon after technical director in charge of manufacturing. Shortly after the organization of the General Electric Company Mr. Rice was promoted to the position of chief engineer of that company. He was made third vice-president in 1896, having charge of the technical and manufacturing departments. In 1903 he was made a director and subsequently became senior vice-president of the company. Over one hundred patents have been issued in his name. Mr. Rice was instrumental in the development of high tension apparatus, the successful transmission of power at extra high voltages, and did much to improve the design of the rotary convertor and the revolving field generator, as well as electric traction equipment. Mr. Rice is a member of the American Institute

E. W. Rice, Jr.

of Electrical Engineers, the Institution of Civil Engineers, the Institution of Electrical Engineers of Great Britain, and a member of the Engineers' Club of New York. After the Paris exposition in 1900 he was created Chevalier of the Legion of Honor. In 1903 the degree of A. M. was conferred on him by Harvard University, and in 1906 he was given the degree of D.Sc. by Union College, Schenectady.

The Canadian General Electric Company, Ltd., which owns and controls as subsidiary companies the Canada Foundry Company, Ltd., and the Canadian Allis-Chalmers, has decided to consolidate the selling organizations of the two latter companies, dropping the name Canada Foundry Company, Ltd., and conducting the selling organizations of both companies under the name of Canadian Allis-Chalmers, Ltd. Hereafter all sales of electrical apparatus and supplies will be in the name of the Canada General Electric Company, Ltd., and all general engineering contracts and sales of mechanical appliances in the name of Canadian Allis-Chalmers, Ltd.

John L. Nicholson, who has been southern sales manager of the American Locomotive Equipment Company, has been elected director, vice-president and general sales manager of the Locomotive Arch Brick Company, with headquarters at 1201 Chamber of Commerce building, Chicago. Mr. Nicholson was connected with the Chicago & North Western for 13 years as fireman, engineer and road foreman of engines. He entered the employ of the American Locomotive Equipment Company in 1904, after that company had purchased the Wade-Nicholson Hall Arch, of which he was one of the inventors, and he has had a great deal of experience in the development of the brick arch to its present state of efficiency. When the American Arch Company was formed and took over the business of the American Locomotive Equipment Company, he was appointed southern sales manager, which position he held to May 1, this year.

TRADE PUBLICATIONS.

TRAP DOORS AND FIXTURES.—The O. M. Edwards Company, Syracuse, N. Y., has published catalog H, giving illustrations and descriptions of its various types of steel trap doors and fixtures for cars.

PNEUMATIC TOOLS.—The Chicago Pneumatic Tool Company, Chicago, has issued bulletin No. 127, describing its pneumatic drills, reamers, wood borers, flue rolling and packing machines, and grinders.

FOUNTAIN DRAWING PENS.—The Keuffel & Esser Company, New York, has published an illustrated leaflet describing the Smith fountain drawing pen, which has just been patented and put upon the market.

AIR BRAKE HOSE.—The Sprague Electric Works of General Electric Company, New York, has published an illustrated booklet on its Sprague steel armored air brake hose. The illustrations show this hose fitted to cars.

TERMINAL FACILITIES.—The Bush Terminal Company, New York, has published an illustrated booklet entitled How to Reduce Overhead Expense, pointing out the advantages to be derived from the use of its terminal facilities.

INDUSTRIAL LIGHTING.—The Cooper Hewitt Electric Company, Hoboken, N. J., has published an illustrated booklet entitled Industrial Lighting. This booklet deals with the theory and practice of the artificial illumination of factories, shops and works.

LOCOMOTIVE CRANES.—The Brown Hoisting Machinery Company, Cleveland, Ohio, has published catalog No. 1 of Brownhoist locomotive cranes. The catalog is devoted largely to excellent photographs of these cranes in action but contains also some interesting descriptive matter.

BLUE PRINTING MACHINERY.—The C. F. Pease Company, Chicago, has issued an illustrated catalogue entitled "Everything for Blue Printing," which describes and illustrates all its latest and most improved automatic machinery for blue-printing work and various accessories used for this work.

LUBRICATORS.—The Detroit Lubricator Company, Detroit, Mich., has published catalog No. 36L, of the Detroit bullseye locomotive lubricators and locomotive specialties. The bulletin includes dimension tables and valuable information on the care and cleaning of the lubricators.

STEAM COUPLERS.—The Gold Car Heating & Lighting Company, New York, has published an illustrated folder, pointing out the advantages of Gold's Wedge Lock steam coupler, and a comparative diagram on a separate sheet, showing the action of the Gold steam couplers' oscillating gasket and the non-oscillating, soft gasket.

LOCOMOTIVES.—The Baldwin Locomotive Works has issued in pamphlet form an illustrated article on the "Recent Development of the Locomotive," by George R. Henderson, consulting engineer of the Baldwin Locomotive Works, reprinted from the journal of the Franklin Institute; also an attractive illustrated booklet on gasolene industrial locomotives.

MIKADO LOCOMOTIVES.—The American Locomotive Company, New York, has devoted bulletin No. 1013 to its mikado locomotives, which are designed to combine increased train loads, sustained high speeds, and a high degree of economy in fuel consumption. The bulletin gives a table, showing the results of comparative service tests of mikado and consolidation locomotives, and another table showing the principal dimensions and specifications of mikado locomotives built and building by the company. Illustrations of 16 different mikado locomotives are also shown, together with train tonnage figures for each at different speeds and on different grades.

SWISS RAILWAY EMPLOYEES.—There are employed on Swiss railways 42,000 persons, 35,200 of whom are with the state lines and 6,800 on private roads. This does not include tramways or funiculars, the majority of which are owned by municipalities or Cantons.

HIGH PRICE OF OIL FUEL IN AUSTRIA.—It is only a very short time ago that, at the instance of the petroleum producers of Galicia, the Austrian authorities agreed to have the locomotives on a considerable mileage equipped to burn oil. Now the price of oil has gone up so much that the Austrian government is preparing to change back to coal again on part of these engines.

ROSARIO-MENDOZA LINE, ARGENTINA.—The financing of the first 175 miles of the line from Rosario to Mendoza has been arranged by the original holders of the concession with the Banco Frances del Rio de la Plata. The bank will issue stock and bonds to cover an estimated expenditure of $3,000,000. The cost of the entire line is calculated at about $25,000,000. The national congress has approved the construction of numerous branches from the line authorized by the original concession.

ELECTRIC RAILWAY CONSTRUCTION IN SWITZERLAND.—Electric railway building has been active during the past few years, this being particularly noticeable in the Lugano district. The lines completed and put into operation in the Canton of Tessin within the past twelve months are: Locarno-Bignasco, 17 miles; Bellinzona-Mesocco, 16 miles; Biasca-Acquarossa, 9 miles; Capolago-Chiasso, 8 miles; Lugano-Ponte Tresa, 8 miles; Lugano-Tesserete, 5 miles; Lugano-Cardo-Dino, 5 miles.

NEW RAILWAYS FOR SUMATRA.—In 1908 the surveys were made for two railway systems to be built by the Dutch Indies government, which together would extend from Telok Betoeng, at the extreme southern end of Sumatra, through the very middle of the island to Medan. These surveys have since been approved, and money allotted by the government to begin the work. Although these railways will actually form one continuous line, they are nominally divided, for construction purposes into two distinct systems, as follows: The South Sumatra Railway, extending from Telok Betoeng to Petanang, with a branch to Palembang, near the east coast; and another branch to Benkoelen, on the southwest coast. This system, with branches, will total 840 miles. It is to be of 3 ft. 6 in. gage, and the estimated cost of construction is $43,200,000, to be extended over a period of 21 years. In other words, about 40 miles will be built, and $2,050,000 expended each year on this system alone. The Middle Sumatra Railway will extend northward from Petanang, the north end of the South Sumatra system, to Medan.

Railway Construction.

ASHLEY, DREW & NORTHERN.—Regular service is now in operation between Crossett, Ark., and Ladelle, 33 miles, and between Ladelle and Monticello, 10 miles, there is irregular train service. The plans call for building from Crossett, north via Whitlow, Fountain Hill and Monticello to Gillett, about 90 miles. (November 15, p. 936.)

CENTRAL OF MARYLAND.—This company has been granted permission to build from Keymar, Md., east to Union Bridge, about 10 miles. B. T. Scott, president. W. J. O'Brien, Jr., Calvert building, Baltimore, and C. R. Foutz, Westminster, are interested.

CHESAPEAKE & OHIO.—The Coal River district of the Huntington division has been extended from Helen, W. Va., to Sovereign, 5 miles.

CHICAGO, MILWAUKEE & ST. PAUL.—A new branch has been opened for business on the Columbia division, known as the Moses Lake line, from Tiflis, Wash., west to Neppel, 15 miles. On the Puget Sound lines the Beverly-Hanford extension has been opened for business, and the Montesano line has been opened for freight traffic from South Montesano to Montesano.

CHICAGO & NORTH WESTERN.—An officer writes that a contract has been given to Winston Brothers Company, Minneapolis, Minn., for the grading and bridge work on an eight-mile coal spur from Benld, Ill., south to Staunton, thence southwesterly into Madison county. The work is now under way.

COLORADO & SOUTHERN.—The former Denver & Eastonville line of the Northern division has been extended from Eastonville, Colo., to Falcon, 10 miles.

DALLAS, FAIRFIELD & GULF.—Incorporated in Texas with $105,000 capital and headquarters at Fairfield, to build from Dallas southeast via Ferris and Fairfield to Jewett, about 110 miles. The incorporators include: W. F. Storey, Fairfield; T. E. Alexander, Teague; W. J. Hall, Corsicana, and J. W. Wright, Ferris.

DELAWARE, LACKAWANNA & WESTERN.—A contract has been given to C. W. Reynolds, New York, for double-tracking work on seven miles between Jamesville, N. Y., and Syracuse.

DULUTH & IRON RANGE.—The main line has been extended from Ely, Minn., northeast to Winton.

GREAT NORTHERN.—An officer writes regarding the reports that a new line is to be built in British Columbia, that the Great Northern has had negotiations under way for a joint line with the Kettle Valley from Hope, B. C., to Coquihalla Summit, but the negotiations have not been completed, and no contracts have been let for the work.

LEXINGTON & EASTERN.—See Louisville & Nashville.

LOUISVILLE & NASHVILLE.—According to press reports the Lexington & Eastern is locating a 10-mile branch from Mason, Ky., up Mace's creek on the Letcher-Perry border to tap extensive coal and timber lands. It is understood that construction work on the branch will be started at once.

MANSFIELD RAILWAY & TRANSPORTATION.—This company which operates a line from Mansfield, La., southwest to Hunters, 14 miles, is planning to build an extension, it is said, east to Naborton, about 12 miles.

MOTLEY COUNTY.—Incorporated in Texas with $100,000 capital and headquarters at Matador. The plans call for building from a point 3½ miles north of Roaring Springs, on the Quanah, Acme & Pacific, north through the counties of Motley, Hall and Childress, to Memphis, on the Fort Worth & Denver City. The incorporators include J. N. Gaines, J. E. Russell, T. E. Leckie, R. P. Moore and A. C. Traweek, all of Matador.

NATCHEZ, COLUMBIA & MOBILE.—This line has been extended to Tilton, Miss.

NEW YORK SUBWAYS.—The Dock Contractor Company, New York, submitted the lowest bid, $2,578,000, for the construction of section No. 4 of the Broadway-Lexington avenue rapid transit railroad in the borough of Manhattan. This section extends from a point about midway between Houston and Bleecker streets, northeast under Broadway and Union Square to a point about 390 feet north of the southerly building line of Fourteenth street. It will include half of the express station to be built in Union Square and there will also be a local station at Eighth street. The subway is to be a four-track line. The contractor will not be required to lay tracks, ties or ballast, or to do the interior work in stations. (May 29, p. 1205.)

PEORIA, CANTON & GALESBURG (Electric).—An officer writes that contracts will probably be let in July, to build the line from Peoria, Ill., west to Farmington, thence northwest to Galesburg, 52 miles. The line is to have maximum grades of 2 per cent. and 6 deg. curves. There will be one 850 ft. steel bridge, and another of 120 ft., also about 6,000 ft. of trestle work. Horace Clark, president, Peoria, and L. L. Summers & Co., engineers, Chicago. (June 6, p. 1245.)

SAN ANTONIO, UVALDE & GULF.—An officer writes that a grading contract has been given to Ward & Lee, Mathis, Texas, for work on the extension south from Pleasanton, via Mathis, to Corpus Christi. (May 9, p. 1053.)

VANCOUVER ISLAND HYDRO-ELECTRIC & TRAMWAY.—This company it is understood is planning to build an electric railway at Lady Smith, Vancouver Island, B. C., with an interurban extension to Nanaimo via Chemainus, Duncans and Nanoose. Montaque Yates, Victoria, B. C., is interested in the company.

VIRGINIA-CAROLINA.—This company has given a contract to the Callahan Construction Company, Knoxville, Tenn., to build 40 miles of railroad from Abingdon, Va. Arrangements are being made by the contractors to sublet the work. The plans call for building southeast through Ashe county, N. C., to Jefferson, thence southwest to Todd. (May 9, p. 1053.)

RAILWAY STRUCTURES.

CARLETON POINT, PRINCE EDWARD ISLAND.—Bids are wanted by L. K. Jones, assistant deputy minister and secretary, Department of Railways and Canals, at Ottawa, Ont., on July 2, 1913, for a car ferry terminal at Carleton Point.

CHRISTIE, ONT.—See Hornby.

DALLAS, TEX.—Stone & Webster announce the construction in the near future of an interurban terminal station in Dallas. The building will be nine stories high and, with its yard, will occupy an entire city block. The new terminal will cost $2,000,000, and will be used by all of the interurban lines running into Dallas.

FREEPORT, TEX.—The Houston & Brazos Valley Terminal Company has been organized with a capital stock of $300,000 to build railway terminals at Freeport. Directors, C. E. Schaff, president of the Missouri, Kansas & Texas; W. A. Webb, general manager of the Missouri, Kansas & Texas; Felix Jackson, Jas. A. Baker and F. R. Cobb.

HORNBY, ONT.—The Railway Commissioners of Canada have authorized the Canadian Pacific to build bridges on the Ontario division, London sub-division, as follows: One near Hornby; two near Christie, and one over Etobicoke river, near Summerville.

LOCKPORT, N. Y.—The New York Central & Hudson River expects to build in the near future a brick freight house and a team yard at Park avenue, at a cost of between $50,000 and $100,000. The building will be 400 ft. x 40 ft., one story high, except at the eastern end, where a second story for offices will be added.

MUSKOGEE, OKLA.—The Missouri, Oklahoma & Gulf has let a contract to Rooney & Culp for the foundation, and to the Central States Bridge Company for structural work, for its new shops to be built at this point. The main building will be 148 x 200 ft.; the car repair shed 46 x 180 ft.; the carpenter shop 32 x 38 ft.; and the store room 52 x 80 ft.

NONCONNAH, TENN.—It is announced that the Yazoo & Mississippi Valley will at once begin work on construction of two roundhouses in connection with plans that provide for the ultimate construction of car and machine shops at this point.

SUMMERVILLE, ONT.—See Hornby.

Railway Financial News

Atchison, Topeka & Santa Fe.—The Kansas railroad commission has approved of the lease of the Dodge City & Cimarron Valley for 10 years, at an annual rental of $120,000. The Dodge City & Cimarron Valley runs from Dodge City, Kan., to Elkhart, Okla. (See Railroad Construction, September 27, 1912, page 599.)

Atlantic Northern & Southern.—A decree of sale of this property has been entered providing for the sale of the north end for $87,000 to J. A. McWaid, representing the bondholders, and of the south end for $98,000 to Ables & Taussig, preferred creditors.

Boston & Albany.—This company has applied to the New York Public Service Commission, Second district, for permission to issue $2,015,000 bonds.

Buffalo & Susquehanna.—The New York Supreme Court has authorized the receiver to issue $500,000 six months' receiver's certificates to provide for the $500,000 5 per cent. receiver's certificates matured June 1. Of these certificates, $105,000 6 per cent. certificates have been sold and £69,000 ($345,000) certificates have been discounted. The remaining $50,000, which may be issued either as sterling certificates or as interest bearing dollar certificates, have not as yet been sold.

Canadian Pacific.—The company has called for redemption on July 1 the £7,161,500 ($35,807,500) first mortgage 5 per cent. bonds which are due July 1, 1915. The company is to pay £102 ($510) for each £100 ($500) bond.

Chesapeake & Ohio.—See Kanawha & Michigan.

Delaware & Hudson.—This company has applied to the New York Public Service Commission, Second district, for permission to issue $5,000,000 first and refunding mortgage bonds.

El Paso & Southwestern.—The Arizona Corporation Commission has granted permission to the El Paso & Southwestern to consolidate with it the six roads which form the El Paso & Southwestern system.

Kanawha & Michigan.—The semi-annual dividend of 2½ per cent. and an extra dividend of 1 per cent. have been declared on the $9,000,000 stock, of which $8,054,500 is owned jointly by the Chesapeake & Ohio and the Lake Shore & Michigan Southern. The annual rate in 1912 was 5 per cent., and in June, 1911, the first dividend of 4 per cent. was declared.

Kansas City, Mexico & Orient.—In ruling on the application for a final decree of foreclosure sale, Judge Pollock has held that before this decree can be granted the bankruptcy proceedings of the International Construction Company and the Union Construction Company, which companies built the K. C. M. & O., must be disposed of.

Lake Shore & Michigan Southern.—See Kanawha & Michigan.

Lehigh Valley.—The *Railway* company has applied to the New York Public Service Commission, Second district, for permission to issue $717,000 debenture bonds to the *Railroad* company for improvements.

Mobile & Ohio.—The plan for the exchange of St. Louis & Cairo collateral 4 per cent. bonds for bonds of a new issue of $3,000,000 Mobile & Ohio St. Louis division 5 per cent. bonds of August 1, 1913, has become effective, a sufficient number of old bonds having been deposited with A. Iselin & Co., New York, and deposits of the remaining bonds are asked for.

New York Central & Hudson River.—The supreme court of New York has upheld the legality of the New York Central Lines equipment trust issue of 1913. The legality of this issue, which had been approved by the New York Public Service Commission and by the Michigan Railroad Commission, was made the subject of a suit by a minority stockholder on the ground that the agreement under which the equipment certificates were issued should be condemned as a violation of the Sherman law.

New York, New Haven & Hartford.—The stockholders' protective committee has named a sub-committee of five to confer with a sub-committee of directors. Thus far the stockholders' committee has received proxies for about 250,000 shares of stock.

See New York, Ontario & Western.

New York, Ontario & Western.—A dividend of 2 per cent. has been declared on the $58,113,982 common stock, payable August 14. No dividends were paid in 1912, but annual dividends of 2 per cent. were paid in 1911 and in previous years, including 1906. The New York, New Haven & Hartford owns $29,160,000 of the stock.

J. P. Morgan and Edward Milligan have been elected directors, succeeding J. P. Morgan, deceased, and L. C. Ledyard, resigned.

Omaha, Ralston & Papillion.—This interurban road, which runs for 18 miles out of Omaha, has been sold under foreclosure for $110,000 to William B. McKinley.

St. Louis & San Francisco.—The receivers are, it is understood, making arrangements with Judge Sanborn, at St. Paul, for the payment of the July interest on the St. Louis & San Francisco refunding mortgage 4 per cent. bonds. Up till Wednesday no action had been taken by the Interstate Commerce Commission in regard to any investigation of the St. Louis & San Francisco receivership.

St. Louis, Iron Mountain & Southern.—The temporary directors who were elected to comply with the Arkansas law that directors of a corporation filing a new mortgage must be residents of Arkansas, have resigned, and J. Gould, F. J. Shepard, James Speyer, J. G. Metcalf, E. L. Marston and E. T. Jeffries have been elected to fill the vacancies.

Union Pacific.—Judge Lovett, chairman of the board, in testifying before the lobby investigation committee of the United States Senate, said that the lawyer whom he was advised to employ if he wished to make the carrying out of the Union Pacific-Southern Pacific dissolution as easy as possible, and to avoid any adverse legislation, was Edward Lauterbach, of New York. Judge Lovett said that he had not been approached directly by Mr. Lauterbach, but a man had called him up on the telephone and made the above suggestion to him.

Railroad Construction in Cuba.—A recent presidential decree grants to the North Coast Railway a subsidy of $9,500 per mile of road to be built between Carbarien and Nuevitas, and also between Camaguay and Santa Cruz del Sur.

Swiss Railway Earnings.—The receipts of the Swiss State Railways for 1911 were as follows: Passenger traffic, $15,001,890; freight traffic, $21,263,988; other receipts, $1,458,926, a total of $37,724,804. Expenditures were $22,664,762, making a balance in favor of the government of $15,060,042.

Passenger Car Ventilation in Germany.—The rule as to windows in passenger cars in Germany has been that they must not be opened on both sides of the car without the consent of all occupying the compartment. Now on city and suburban trains in Berlin neither window in the front compartment of each car may be opened without such unanimous consent.

Motor Car Service in Bavaria.—In Bavaria the administration which operates the railways maintains also an automobile service on 53 routes permanently, and on 8 more during the summer, carrying passengers and mail and parcels. The service has been profitable, the expenses per motor car mile being 15 cents and the earnings nearly 20 cents, and the net for all the lines amounting to $88,000.

New Railway in Rhodesia.—The railway from Mazoe to Shamva, in Rhodesia, to connect the Shamva goldfield at Abercorn with Salisbury and the Rhodesia, Mashonaland and Beira Railway systems, has been completed and opened to traffic. The line is constructed on the standard South African 3-ft. 6-in. gage, and is about 50 miles in length. It is constructed with 60-lb. rails and steel sleepers. There are 24 plate girder bridges varying from 6 ft. to 20 ft. in span, and one of 75 ft. span, in addition to a lattice girder bridge of 100 ft. span. Over 90 culverts from 2 ft. to 4 ft. in diameter have been built. Stations have been provided at Concession Siding, Glendale, Mazoe River, Pimento Park, Kimberley Reefs and Shamva.

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